Optimizing Innovation Management: A Customer Integration Perspective

How should Lead Customers be integrated in Product Development to Optimize Innovation Management?

Fanni Jukola

Being an Individual Research Project presented in part requirement for International Business and Management Studies, Hogeschool INHolland, School of Economics, Amsterdam/Diemen, The Netherlands.

May 25, 2010

Under the Supervision of Brian Downey

"This work or any part thereof has not previously been presented in any form to the Hogeschool INHolland or to any other institutional body whether for assessment or other purposes. Save for any express acknowledgements, references and/or bibliographies cited in the work, I confirm that the intellectual content is the result of my own efforts and no other person."

Signed .....

Preface

This thesis is presented in part requirement for the International Business and Management Studies as InHolland University of Applied Sciences, School of Economics and Metropolia University of Applied Sciences, School of Business Administration. This study provides a framework constructed around the notions of Open Innovation.

The subject topic chosen has been to my personal interest in innovation and the implications of innovation management procedures. My interest within customer driven innovation arose from a series of conversations with my dear friend Kari Anttila, who at the moment was studying topic related issues at the University of Amsterdam. After various discussions I got very interested within the topic and started to conduct my own research.

In order to narrow down the scope of all related information and sources addressing the topic was indeed a challenge. However, my research in essence was built for my interest and passion to create an understanding of innovation processes and notions of models which are related regarding to innovation management. I believe the awareness gained will be of personal advantage in the future.

Writing this dissertation has been the final quest to successfully finalize my Bachelor's Degree. The finalization of my thesis will close one chapter in my life and I hope to open a new one in the autumn engaging myself in Master studies. I would like to express my gratitude for the people that gave their time for interviews and their guidance with my thesis. I would also like to thank my supervisor, Brian Downey, for his advice and encouragement with my work. I am also very grateful for my family and partner for all the support you have given me.

TABLE OF CONTENTS

List of Figures

Executive Summary

Innovation today is considered as a crucial factor for organizations to maintain sustainable competitive advantage. This study examines innovation within the manufacturing industry from a customer-integration perspective. The aim of the study is to gain an awareness of how proposed theory of collaborative design efforts between the company and customer are implemented in use and acknowledged by companies.

The study provides insight into innovation processes that take part within product development. A theoretical framework is constructed regarding the proposed methodologies of customer integration within product development processes.

The Open Innovation model (Chesbrough, 2003)[1] assumes that firms should seek for external knowledge provided by customers in order to arrive at innovative and new product development ideas. The approach assumes that in order for innovation to flourish, companies should utilize both internal and external environments; mainly trying to stimulate knowledge and ideas arising from users.

The theoretical frameworks are widely recognized and proposed forth to create innovation among companies. The organizational perspective regarding the processes that take part in practice, are gained through in depth interviews with commerce people from different organizations. The intention of the study is to arrive at an understanding of how companies

[1] Chesbrough, H. (2003). *Open Innovation: The New Imperative for Creating and Profiting from Technology*. Harvard University Press: Cambridge, MA.

are utilizing the external environments to gain insight for their innovation processes for product development.

Interesting was the finding that there is much research conducted on customer integration within the service sector, yet there is only little research provided regarding the tangible goods industry.

The objective of the research is based on creating an understanding of the models, gaining an awareness of their suitability in practice and acquiring a management perspective towards them.

1. INTRODUCTION

1.1 Conceptual Background

Manufacturers face problems in understanding the wants and requirements of consumers today as users wants change rapidly, and as firms seek increasingly to serve markets of "one" (Hippel, 2005).[2] Many companies have recognized the needs to provide exceptional offerings and services to customers. In their desire to become customer driven, many companies have started to promote new customization efforts and specific procedures to meet individual requests. However as customers wants and desires are changing constantly, companies are struggling to come up with such solutions and offerings.

Customers today seek information from various sources to justify whether to try a new product or not. The internet has opened new sources for information; it contains various sites and blogs for discussion where users freely promote new product solutions or ideas. New innovations in technology and communication enhance the adoption of new innovations (Prugl and Schreier, 2006)[3], however according to researchers there is plenty of room for new enhancements within innovation of manufactured goods and services.

The early models presenting entrepreneurs bringing new innovative ideas to the markets, has been outdated. Instead the Open Innovation model has emerged with the central idea that external sources and most importantly users themselves are exploited for knowledge in new product development. The Open innovation model is adopted by many researchers

[2] von Hippel, E. (2005). *Democratizing Innovation*. Oxford University Press. Oxford

[3] Prugl, R. and Schreier, M. (2006). *Learning from leading-edge customers at the Sims: opening up the innovation process using toolkits*. R&D Management. 36 (3) : 37-249.

and practitioners who believe that the changes in market dynamics have also changed the way of viewing the commercial generation of ideas.

New ways of utilizing external environments have surfaced, where idea generations are emphasized to be brought from different collaborative trial and error procedures amongst users (Rosenberg, 1982[4]; von Hippel, 1988[5]; Freeman and Soete, 1997[6]; Tidd, Bessant, and Pavitt, 2000)[7]. These new models suggest that Lead users should be interactively incorporated within idea generation processes (Hippel, 1988; Brown and Eisenhardt, 1995)[8]. It is argued that the ability to use external knowledge is a crucial part of innovative performance (Cohen and Levinthal, 1990)[9]. Studies have also demonstrated that firms that have open search strategies for external knowledge tend to be more innovative (Laursen and Salter, 2006).[10]

This study aims to construct an understanding around the central framework of Open Innovation and the customer-integration models proposed by the approach. The three most recognized customer integration methodologies are presented: *Empathic design method* (Leonard and Rayport, 1997)[11] *Lead user tool-kit approach* (von Hippel, 2001)[12] and the

[4] Rosenberg, N. (1982). *Inside the Black Box: Technology and Economics*. Cambridge University Press. Cambridge, UK
[5] von Hippel, E. (1988). *The Sources of Innovation*. Oxford University Press. New York.
[6] Freeman, C and Soete, LLG. (1997). *The Economics of Industrial Innovation.* Printer: London.
[7] Tidd, J, Bessant J, Pavitt K.L.R. (2000). *Managing Innovation: Integrating technological, Market and Organizational Change.* 2nd ed. Wiley: Chichester.
[8] Brown SL, and Eisenhardt K.M. (1995). *Product development: past research, present findings and future directions.* Academy of Management Review. 20 (2): 343-378.
[9] Cohen, W.M, Levinthal D.A. (1990). *Absorptive Capacity: A new perspective of learning and innovation.* Administrative Science Quarterly 35 (1): 128-152
[10] Laursen, K. and Salter, A. (2006). *Open for Innovation: The Role of Openness in Explaining Innovation Performance among UK Manufacturing Firms.* Strategic Management Journal, 27 (2): 131-150
[11] Leonard ,D and Rayport, J.F. (1997). *Spark Innovation through empathic design*. Harvard Business Review 75 (6): 102-113
[12] von Hippel, E. (2001). *Perspective: User Toolkits for Innovation*. Journal of Product Innovation Management. 18 (1): 247-257

Virtual Customer integration (Dahan and Hauser, 2002)[13]. From primary research conducted, qualitative analysis is drawn from the aspects of how companies view these models and to what extent they are incorporating such or similar models into practice.

Insights are presented, regarding the extent to which companies are utilizing external environments for new ideas. Their perceptions on the positive and negative aspects associated with the implications of including customers into product development phases are provided.

1.2 Defining Innovation

What is innovation and what drives its development in companies?

In the beginning of the 20th century innovation was described as representing the driving force of economic development (Schumpeter, 1934[14], 1942[15]). At the time it was argued accordingly that capitalist entrepreneurs who created innovations was what ensured the cyclic alternations of prosperity and recession. Although market dynamics have changed since the time, the definition still remains relevant.

Many specialists today agree that innovation is unavoidable for companies if they wish to remain competitive and have access to markets. (Brown and Eisenhardt, 1995; Rosenthal, 1992[16]; Stock et al., 2002).[17] Innovation also represents a crucial motivational factor for countries' international competitive performance (Furman, Porter and Stern, 2002).[18]

[13] Dahan, E. and Hauser, J.R. (2002). *The Virtual Customer.* The Journal of Product Innovation Management. 19 (5): 332- 353.
[14] Schumpeter, J.A., (1934). *The Theory of Economic Development.* Harvard University Press, Cambridge, MA.
[15] Schumpeter, J.A., (1942). *Capitalism, Socialism and Democracy.* Harper, New York.
[16] Rosenthal, S.R., (1992). *Effective Product Design and Development*. Irwin, Homewood, IL

Today, we are constantly surrounded by notions of innovation. The word innovation occurs in various mission, vision and operational statements of organizations. Often it is said that it is innovation that drives businesses toward their targets and future success. However, never is it explicitly described or defined what it in its essence represents.

Innovation is a subject with a dynamic, intangible and interesting nature. Thus the actual definition and procedural implications of innovation processes are complex and difficult to grasp.

Defining innovation leaves plenty of room for different interpretations, due to its unspecified nature and character. Innovation, in its simplest form means new or a change in the manner something is done.

For the purpose of this study, the following definition has been selected to provide an understanding of innovation and its purpose: *"Innovation implies on the generation, acceptance, and implementation of new ideas, processes, products, or services,"* (Hult and Hurley).[19]

[17] Stock, G.N., Greis, N.P., Fischer, W.A., (2002). *Firm size and dynamic technological innovation*. Technovation 22: 537–549.
[18] Furman, J, Porter, M and Stern S. (2002). The *Determinants of National Innovative Capacity.* Research Policy 31: 899–933
[19] Hurley R.F., and Hult, T.M. (2004). *Innovativeness: Its Antecedents and Impact on Business Performance.* Industrial Marketing Management. 33 (5): 429-438

1.3 Innovation Management

Birkenshaw, Hamel and Mol, (2008: 825)[20] define innovation management as the following: *The invention and implementation of a management practice, process, structure or technique that is intended to further organizational goals.*

Defining the processes of innovation management proposes a challenging endeavour. There is no exact journey towards innovations, as the processes and successes of innovative ideas are highly unpredictable and uncontrollable (van de Ven and Angel, 2000).[21]

Designs, models and strategic visions of innovation can be produced which can give guidance for the processes, sequences and pathways of management. Yet, due to the complex nature of innovation, a management process which would correctly guide managers towards innovative results may never be fully achieved. If such a process theory could be empirically researched and established, it would make a significant contribution to improving the capabilities of managers and entrepreneurs to innovate.

1.4 User-Centred Orientation

Every year there are various patents made on new innovative ideas generated. However, only a small fraction of these actually become commercial products.

[20] Birkenshaw, J., Hamel, G., and Mol, M.J. (2008). *Management Innovation*. Academy of Management Review. 33 (4): 825

[21] van de Ven, H. L., and Angel M. S. P. (2000). *Research on Innovation Management: The Minnesota Studies.* Paperback ed. Oxford University Press. p. xvii

This phenomenon is due to the fact that innovators often fail to consider their target audience (Rogers, 1995).[22] They often tend to get focused on their invention and forget to take into account the actual end-user.

The end user does not typically evaluate the product's scientific value, but only concentrates on the usefulness and attractiveness. The fact that something is a new invention is not enough appealing for people to widely adopt its use. Instead it is a crucial matter to take into consideration the desired product features appreciated by the end-user.

In order to understand customer wants, companies are becoming more and more aware that they need to approach customers in order to gain specific product-want related information. Companies are increasingly trying to work together with customers in order to acquire customers' knowledge, which would add value for new product developments. Such collaborative efforts between companies and customers represent a new competitive advantage for companies (Ahlstrom and Westbrook, 1999[23]; Borenstein and Frutos, 2004).[24] Implementing user-design methods increase the information gain from users regarding their perceptions on product attributes and functionalities. The methods also generally reduce the chances of failure of a new product, and at the same time also increase the possibility of users adopting the product. There are factors that may influence the final adoption of an innovative product. However, setting user-centred needs at the centre of attention may reduce the chance of failure.

[22] Rogers E.M. (1995). *Diffusion of Innovation*. 4th edition. New York: Free Press.
[23] Ahlstrom P. and Westbrook, R. (1999). *Implications of Mass Customization for Operations Management: an exploratory survey.* International Journal of Operations and Product Management. 19 (2): 262-272.
[24] Borenstein, D. and Frutos J.D. (2004). *A framework to support customer – company interaction in mass customization environments.* Computers in Industry. 54 (2): 115-135.

Organizations searching for innovative ideas should seek a balance between new ideas and user acceptance (Rogers, 1995). Ideally the innovation process should incorporate targeted users and seek their inputs from the very start. Whether innovative products will eventually have any commercial value can never be estimated for sure. However, starting from a core understanding of the customer target group can contribute to being a critical success factor.

As indicated previously, this study will focus on the development of innovation within organizations and user-centred perspectives on innovation. A central feature of this study is the collaborative design methods between company and customer, proposed to create innovative features among product development processes.

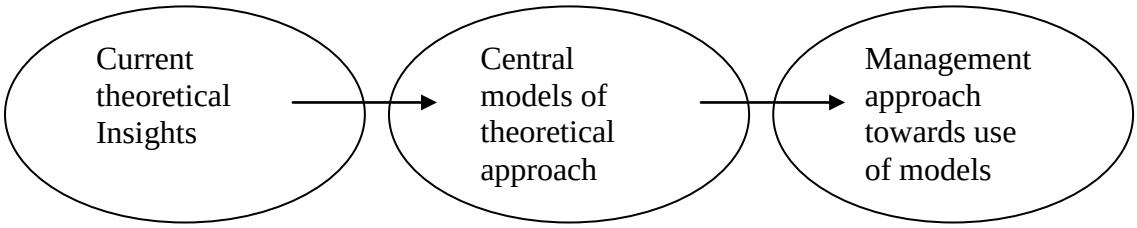
1.5 Objective and Research Question

The objective of this study is to create an understanding of the theoretical framework of customer integration in new product development processes. Three models of customer integration methodologies are presented. The contribution is to create an understanding of the customer integration approach and to analyze the usability of its suggested models within companies. This will be done by the construction of six in-depth interviews with people from different organizations.

The findings and implications of the study aim at understanding companies' awareness of these models and whether these models have been executed in practice. The study aims to provide insight towards an approach where there is little empirical research. The objective is also to find useful implications regarding innovation practice that could possibly guide and provide lessons on innovation management processes.

To illustrate this in a clear manner the following conceptual model is presented:

Figure 2: Conceptual model of the study



2. THEORETICAL FRAMEWORK

2.1 Changes in Innovation Dynamics

In the mid-twentieth century Alfred Chandler (1977[25], 1990[26]) claimed that 'structure follows strategy', where he highlighted that a company's internal research and development capabilities provided a company the key competitive advantage over smaller and newer rivals on the market. This is understood as the Closed Innovation model, also referred to as the traditional vertical integration model.[27] Within this model approach, internal research and development result in the development of new products. Chesbrough argues that this brought along with it a specific mindset:

> It is a view that says successful innovation requires control… This paradigm counsels firms to be strongly self-reliant, because one cannot be sure of the quality, availability, and capability of others' ideas: 'If you want something done right, you've got to do it yourself'. (Chesbrough, 2003: xx)

However, towards the end of the twentieth century, Chesbrough concluded that this model had its limitations, as internal capabilities could not further evolve without external stimuli. In a personal perception I strongly agree with this, due to the vast changes in market dynamics and pressures brought by globalization, companies solely pursuing internal capabilities will not further enhance their competitive advantage.

For the past few decades the dynamics of innovation have undergone structural change. Even the context and environment in which innovation occurs has faced change, as industries are highly competitive and also evolving constantly. Industrial companies nowadays are becoming more and more vertically disintegrated in their operations. The

[25] Chandler, A. D., Jr. (1977). *The Visible Hand: The Managerial Revolution in American Business.* Cambridge, MA: Belknap Press.
[26] Chandler, A. D., Jr. (1990*). Scale and Scope: The Dynamics of Industrial Capitalism.* Cambridge, MA: Belknap Press.
[27] Chesbrough, H. Vanhaverbeke, W. and West, J. (2006). *Open Innovation: Researching a New Paradigm.* Oxford University Press: New York. p.1.

trends of outsourcing and networking are becoming essentials in business practice and technological advancements only support the capabilities of such business practice.

Innovation management processes have changed in the manner that information, communication and the lower costs of these transactions have undergone dramatic change as technology has developed. Technological advances, fast information in- and outflows enhance innovation and by utilizing them more can be developed (Chesbrough, 2006).

Remaining competitive on the world markets and the notions of globalization also affect the changes in innovation processes. Companies can generally not expand their R&D efforts globally, this would be extremely costly. Yet, R&D must take into consideration the cultural differences and the variation in local tastes which differ to great extent in different regions. In order to meet market wants, these differences must be gathered and considered before incorporated within product development.

However, today's technological knowledge enables us to be connected to various sources around the globe. By using technological advancements companies can obtain valuable information wherever, whenever. This significantly gives rise to the open innovation context, as information from external sources can be gathered time and cost effectively, from various geographical areas. It can therefore be stated that technology drives innovation to a certain extent and also pursues new capabilities which enhance business practice.

2.2 The Open Innovation Model

Previously, a company's internal research and development practices presented a great strategic and competitive advantage. It was the internal knowledge that was used to stimulate innovative solutions; this is known as the closed innovation model. In today's environment new measures of innovation management are focused on the external sources of innovation, enhancing companies' business models. Companies today are acknowledging the fact that innovation processes must change in order to remain competitive. This, however, also requires changes in the ways in which companies are operating their innovation processes.

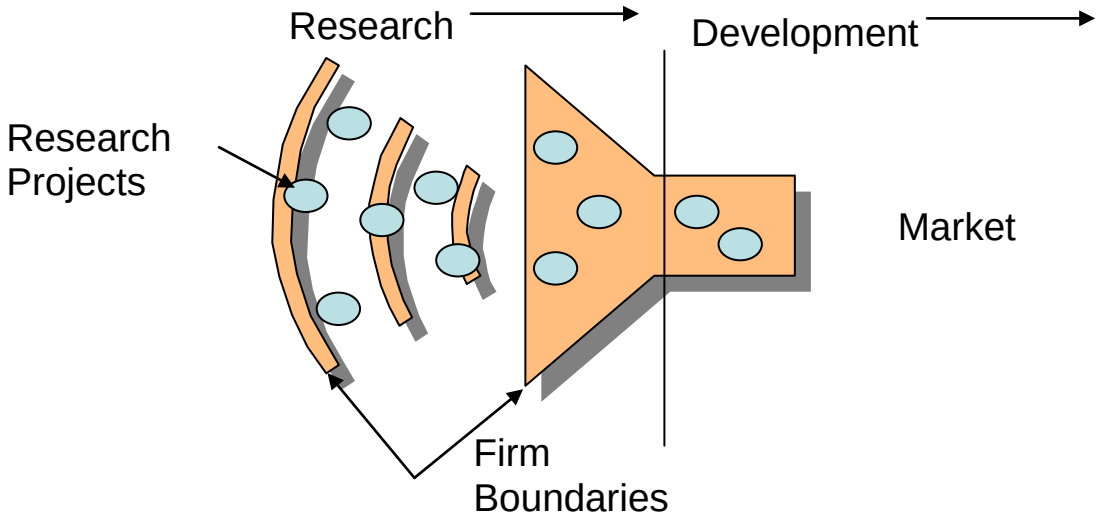
The open innovation paradigm (Chesbrough, 2003) proposes that the advantages companies' today gain from internal research and development expenditure and efforts are declining. Accordingly, the most fundamental parts of innovation processes involve the search of new ideas. Therefore, once searching for new ideas, companies should also seek for users originating with potential ideas for product development. Thus, the open innovation model assumes that innovation processes and their successes are highly dependent also on the search and collection strategies for external knowledge.

The concept of the open innovation model (Chesbrough, 2003) assumes that firms should utilize external as well as internal ideas, in new product development. The model regards R&D as open, in a way that new proposals or concepts can flow inside or outside the company. These new concept ideas can also be produced into a product from inside or outside the company as well. The model treats external ideas and pathways to information sources as important as the prior traditional closed innovation model, where R&D is

assumed to be stimulated within a company itself (Chesbrough, Vanhaverbeke and West, 2006).[28] Implementing an open innovation model approach into the development procedures of a company, will multiply the number of possible sources of innovation. Open innovation brings about capabilities to actually outsource R&D effort, and thus gain advantage on the global markets of today.

Figure 2 demonstrates the traditional closed innovation model, where research capabilities are internally developed. Figure 3, on the other hand, represents the open innovation model, where is may be observed that research projects are spread outside the company, and the surrounding environment is utilized for knowledge.

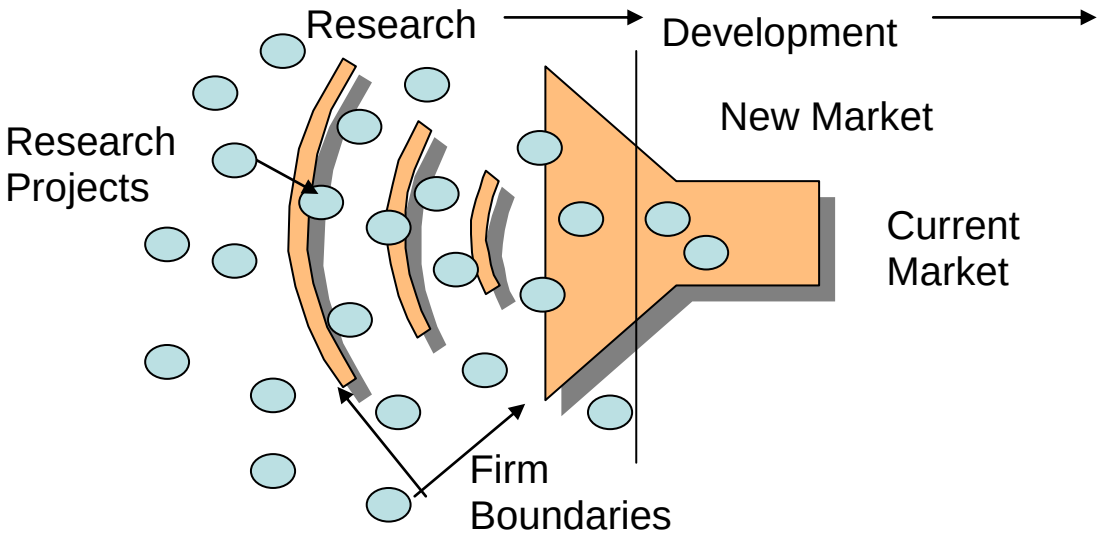
Figure 2: Closed Innovation Model



Source: The Closed Innovation Model
Chesbrough, 2003

[28] Chesbrough, H. Vanhaverbeke, W. and West, J. (2006). *Open Innovation: Researching a New Paradigm.* Oxford University Press: New York. p. 1.

Figure 3: Open Innovation Model



Source: The Open Innovation Paradigm
Chesbrough, 2003

The Open Innovation model approach promotes the ideas of value creation and value capture. While gathering information from external sources, companies are integrating customers in producing knowledge and new potential product concept ideas for them. Customers however, are not only the end-consumers, instead customers are spread across the entire value chain, including suppliers, intermediaries, retailers and such other. Empirical studies have demonstrated that early customer integration leads to better relationship with the partners, a better comprehension of market wants, fewer errors in product development processes and a better product quality. Once customers are integrated within the innovation processes, they may provide direct information regarding their wants from a product. By knowing what they look for in the use of a product, they can arrive at innovative ideas and provide valuable feedback on prototypes and concept ideas.

2.3 What is new regarding the Contributions of the Open Innovation Model

Innovation has a long past of studies. The need for creating innovations and new ideas once gave rise to the construction of the R&D laboratories in companies. Having internal research efforts also secured intellectual property rights and laws. However, in many companies the R&D efforts are creating huge costs. Yet large investments in internal R&D efforts do not suggest that customers' product demands are necessarily met. As markets are becoming increasingly customer driven, the impacts of customers' wants and ideas should not be neglected. From this it may be stated that retaining only internal R&D efforts within a company will not lead to long-term success.

There has been a shift from the Closed Innovation to the Open Innovation during the past years. Factors which have resulted to this have been the changes in society. The number of educated people has increased during the past years. People are also more likely to change jobs, for gaining experience, but also taking the company knowledge with them as they leave; this resulting in knowledge flows between firms (Chesbrough 2003).

Enhancements in technological capabilities have promoted the open innovation model. Technology, software systems and the Internet especially have provided mediums where people openly share and provide information allowing new channels to be created and new sources thus to be met (Prugl and Schreier: 245).

When comparing the Closed and Open model of innovation we arrive at differences. The Closed Innovation approach, assumes that the company employs the best "know how and talent." The Open Innovation approach reaction to this is that not "all smart" people are

employed within the same organizations, instead internal and external capabilities should collaborate.

3. MODELS OF OPEN INNOVATION

3.1 Exploring the Concept of Open Design for Innovation

Companies often begin with methods of market research, when searching for information that could possibly be elaborated into new product innovations. However, sometimes market research efforts require much spending, and the results provided, do not seem to meet the expenses. Also, market research frequently delivers heterogeneous trends, rather than explicit information of wants (Pillar and Walcher, 2006).[29]

Studies of innovation have shown that active participation among innovation processes is frequently taken by lead users, main suppliers and large institutions (von Hippel, 1988[30], Brown and Eisenhardt, 1995). These studies have also demonstrated that innovators share their knowledge openly and are often part of communities or network interactions. They rarely innovate alone, as they tend to be part of teams within communities of their interests in which they interact with their ideas (Brown and Duguid, 2000).[31] In this respect, the relationship between the firm and the external environment can play a very important role in shaping innovative performance.

Companies' search for new ideas is not just about finding large amounts of information sources. It is rather more about stimulating knowledge and gathering it from the users. Assessing the companies' contacts with external sources and how they gather information

[29] Pillar, F, T. and Walcher, D. (2006). *Toolkits for idea competitions: A novel method to integrate users in new product development.* R&D Management. 36 (3). p 307.
[30] von Hippel, E. (1988). *The Sources of Innovation*. Oxford University Press. New York
[31] Brown J.S. and Duguid, P. (2000). *The Social Life of Information.* Harvard Business School Press. Boston, MA.

together, provides an understanding of how companies are integrating external sources into their innovation efforts.

The notions of open innovation are to a large extent recognized by researchers and practitioners, who also widely discuss the exploitation of users' knowledge for new product idea generations. Various methodologies have been created in order to integrate customers into the central areas of design activities.

The most acknowledged customer integration techniques are *Empathic design method* (Leonard and Rayport, 1997)[32] which examines customer using an existing product and analyzing their behaviour, *Lead user tool-kit approach* (von Hippel, 2001)[33], which seeks to outsource design activities, and the *Virtual Customer integration* (Dahan and Hauser, 2002)[34] which includes IT-based communities enhancing the customer ideas. These three methodologies will be individually presented in further detail below.

[32] Leonard, D. and Rayport, J.F. (1997). *Spark Innovation through empathic design*. Harvard Business Review. 75 (6): 102-113
[33] von Hippel, E. (2001). *Perspective: User Toolkits for Innovation*. Journal of Product Innovation Management. 18 (1): 247-257.
[34] Dahan, E. and Hauser, J.R. (2002). *The Virtual Customer*. The Journal of Product Innovation Management. 19 (5): 332- 353

3.1.1 Empathic Design Methodology

For long, different marketing research techniques have been used in order to gain insight into customer product use. Focus groups, usability laboratories, and other traditional research methodologies, which include observation as its foundation of search[35], have provided insight into consumer use of a product. However, according to researchers, customers' ability to guide the development of new products is limited by their experience, and often customers' face difficulties in recognizing their needs (Leonard and Rayport, 1997: 103).[36]

A new emphatic design method (Leonard and Rayport, 1997) has emerged, outlining the importance of observing customers in their natural inhabitants, watching customers use products and while conducting their everyday routines.[37] The methodology consists of members of a design team to include them selves into the user's environment for a period of time until they understand problems or feelings experienced by the user. Sometimes users are accustomed to certain conditions and do not even consider to ask for a solution.[38] Therefore when monitoring the use of the product, valuable information may be gained.

Observation can provide realization on factors such as how customers find the use of the product. Insight to factors such as how easy or difficult the product package might be for instance to open, or does the user need to search information within the product manual meanwhile use, and are they hesitant at any point of using the product.[39] These aspects of

[35] Leonard ,D and Rayport, J.F. (1997). *Spark Innovation through empathic design*. Harvard Business Review75 (6), p. 103
[36] Ibid. p. 103
[37] Ibid. p. 103
[38] Ibid. p. 104
[39] Ibid. p. 103

products might easily not be communicated to a manufacturer, yet are very apparent from viewing the situation.

Leonard and Rayport created the following five steps that they concluded to be the way to spark innovations:

Step 1: Observation

Step 2: Data capture

Step 3: Reflection and Analysis

Step 4: Brainstorming for Solutions

Step 5: Developing Prototypes of Possible Solutions

Users often customize product purposes, in means in which they reinvent or redesign; this has been supported by researches as mentioned in the previous section. The empathic design methodology, proposes a way to capture what customers have difficulties in explaining.[40] By integrating the customer in the 'doing' process, analysis can be drawn from varieties of facts that indicate how a user would use the product, or if there are significant attributes missing from its features and functions.

An example of the empathic design method is clearly demonstrated in a project undertaken by Design Continuum[41] where their aim was to improve tools and techniques used in knee surgery (cited in Hargadon and Sutton, 2000: 160). The company's engineers went to a convention where they had doctors re-generate the surgical processes in a way that allowed

[40] Leonard ,D and Rayport, J.F. (1997). *Spark Innovation through empathic design*. Harvard Business Review75 (6), p.106

[41] Hargadon, A., and Sutton, R. I. (2000). *Building an Innovation Factory*. Harvard Business Review, 78 (3): 159-160.

the engineers to watch and talk with the surgeon.[42] The aim of this was for the engineers to view how surgeons used the specific tools. As a result of executing this process, the designers noticed that surgeons had developed elaborate habits to make up for what they called the "third arm." This encouraged the engineers to develop a new surgical tool that allowed doctors to hold, rotate and operate on the kneecap.[43]

The empathic design can provide meaningful insight into product uses that are difficult for customers to express. The method provides a design that is relatively low-cost and low-risk to execute in practice; yet may provide important information that could lead to new innovative product alterations or product developments.

3.1.2 Toolkit Approach

Recently practitioners and researchers have proposed the notions that user-centred toolkits enabling open design, to become widely adopted in their purpose to generate innovation. According to the approach, manufacturers could abandon their efforts to understand the customers' needs, and actually shift the design side of product development to the customer themselves (von Hippel, 2001)[44]. Basically the toolkits would outsource need-related tasks which would expose the specific qualities recognized as useful from the customer's perspective. These toolkits could serve as promising market research tools for aiding companies with their product development efforts.

[42] Hargadon, A., and Sutton, R. I. (2000). *Building an Innovation Factory*. Harvard Business Review, 78 (3): 106
[43] Ibid. p. 160.
[44] von Hippel, E. (2001). *Perspective: User Toolkits for Innovation*. Journal of Product Innovation Management. 18 (1): 247-257.

Studies have demonstrated that the average share of innovation that originates from external sources, other than an organization's efforts, is between 34-65 % (Conway, 1995[45], von Hippel, 2002[46], Linden et al., 2003).[47] An empirical investigation also showed that 30% of respondents had developed a new product for personal or in-house use when product offerings were not meeting their needs (von Hippel, 2002). This significantly highlights that users operating in their physical environments are likely to pursue design activities to suit their own purposes.

Companies try to understand embedded customer wants by specific research processes. These processes often begin with the customer providing information they perceive valuable for a product. The company then responds by providing a solution, however, this might only be partially successful. The user then has trials with the product in their user setting, finds flaws and refers back to the company with corrections. This cycle continues until satisfaction for product use is reached. During this procedure the user is basically "learning by doing" where they are conducting trial-and-error processes to find out solutions that best suit their wants from the product (von Hippel, 2001). It is difficult to say initially what you would want from a product at first, yet once engaged with using the product, we learn more about our wants and needs. Therefore, we learn from products by using them.[48]

[45] Conway, S. (1995). *Information Boundary-Spanning Communication in the innovation process: an empirical study.* Technology Analysis and Strategic Management 7 (3): 327.
[46] von Hippel, E. (2002). *Horizontal innovation networks – by and for users.* MIT Sloan School Management and Working Paper No 4366-02.
[47] Linder, J.C., Järvenpää, S. and Davenport T.H. (2003). *Toward an Innovation Sourcing Strategy.* MIT Sloan Management Review: 43-49.
[48] von Hippel, 2001. p. 248

In other words products must be able to be used in real life settings in order to fulfil their initial purpose (von Hippel, 2001: 248). When involving the customers in these design phases, information will inevitably be going back and forth between the company and customer. Information transfer will result in required modification for product prototypes; it is difficult to anticipate features wanted by users during early trials and therefore product modifications are repeatedly required. To repeat these procedural cycles, contribute as very time-consuming efforts and transferring the information in this way is also very costly (von Hippel, 2001: 249).

The toolkit approach pioneered by von Hippel, works in a manner where the user would be equipped with and appropriate "user toolkit." With the toolkit the customer could interact with the product in real life situations and come up with their own design proposals. Now we arrive at a question that why would this be better? However, by transferring the "need related" work to the user would provide two advantages.

First it would decrease the level of 'Sticky' information (von Hippel, 1994).[49] This is basically the cost of information transfer. von Hippel refers to the stickiness of information and describes it as transferring information from one place to another and therefore, making the information usable for the manufacturer. When the cost to transfer is low then stickiness would remain low, when high also stickiness would result to be high (von Hippel, 1994). Users often have a lot of insight into what they would want or need from a product within a certain situation; this information, however, is difficult to transfer to the manufacturers and is thus regarded as "sticky" information. Thus, concentrating the need-

[49] von Hippel, E. (1994). *"Sticky Information" and the locus of problem solving: implications for innovation.* Management Science, 40 (4): 429-439.

related design tasks to the user eliminates problem solving going back and forth between manufacturer and user.

Secondly, the customer is easily able to use the product at home or wherever they would prefer, and thus arrive at their need-related information in the context of actual use of the product. This is significantly easier and cost effective than having manufacturer based-designers operating in laboratories trying to understand the situational needs of customers (Hippel, 2001). To sum up, by having the customer to work with a toolkit the customer would achieve possibly new solutions by "learning by doing", without referring back to the company constantly, whereas this would result as a cheaper alternative for the manufacturers as well.

There are some examples of how companies have sought to integrate lead users for their design processes. For instance Nestle's Foodservice Division launched a toolkit test project on custom food design. One of their major businesses includes custom foods, such as Mexican sauces, which are produced for major restaurants and take-out food chains[50]. Traditionally custom foods have been developed or modified by chain executive chefs, who have used their knowledge acquired from culinary schools; and by using restaurant equipment they would come up with new recipes.[51]

Though by translating their recipes into mass productions does not work in the best manner. Mass food production uses ingredients in quantity that have a certain quality.[52] However, Nestle took another approach to find an innovative product. They chose

[50] Von Hippel, E. (2001). p. 253
[51] Ibid. p. 253
[52] Ibid. p. 253

approximately 30 ingredient components that could be used within mass production.[53] They then provided the toolkits of ingredients out for chefs willing to be part of the project, who then had the ability to design freely a new sauce construction. After been equipped with the toolkit, the chefs would then make trial and error efforts to achieve a desired outcome. Results for the custom food development were achieved in 3 weeks, where normally it takes 26 weeks of efforts to repeatedly redesign and process interactions between participants.[54]

The research project demonstrated that by equipping lead users with a toolkit and having an environment where they were able to freely translate their designs, development time was decreased dramatically; this may contribute a significant competitive advantage on markets where companies' are constantly competing to be the first to launch new products.

The toolkit approach represents a possible prospect where companies and customers can collaborate and design products they want. The new innovative designs can also be later used for mass customization purposes where there are heterogenic market wants.[55]

3.1.3 The Virtual Customer

The IT enabled Virtual customer integration (Dahan and Hauser, 2002) methodology is a new approach, enhanced by technology to integrate customers with product development.

Product development is increasingly transforming into a global activity, where product team members are widely spread across different locations and time zones. Technology

[53] Von Hippel, E. (2001). p. 253
[54] Ibid. p. 253
[55] Ibid. p. 256

enables the transfer of information, and also enhances the company's interactions with potential consumers. Customers Internet connections and their access to panels and communities make it easier for product development teams to reach customers quickly and also with relatively low costs.

Today, many online communities exist, which represent social networks on the Internet. Through these networks people interact and are highly engaged in a topical area of their interest. Research demonstrates that these communities are also very innovative as users are highly engaged in design activities.

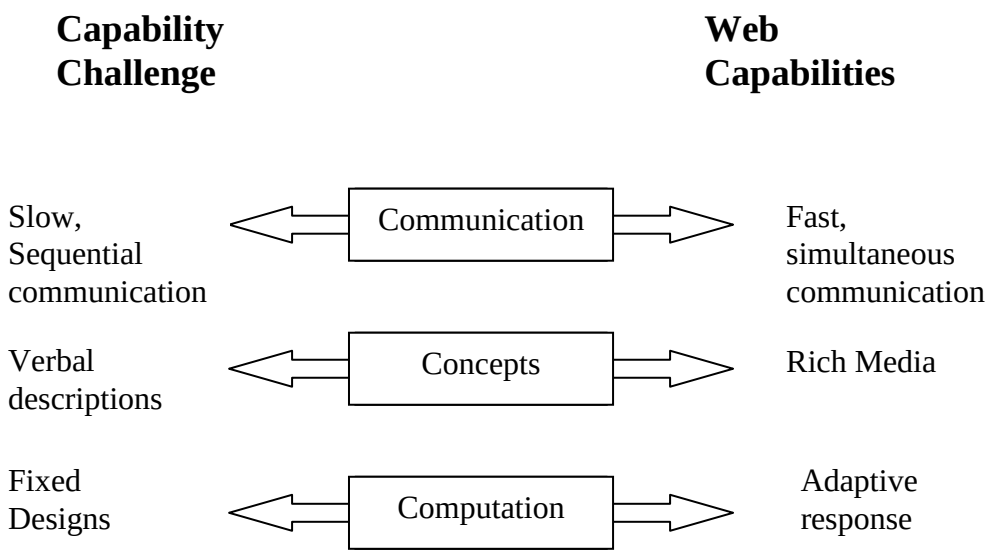
A study constructed around the computer game The Sims, studied empirically how users deal with 'the invitation to innovate' (Prugl and Schreier, 2006)[56]. In the study it was found out that users are highly engaged to innovate, and their commitment is very long-lasting, continuous, evolving and intense. The study also found that once users were provided a set of tools to use in order to design, they pushed their design capabilities further. In addition, it was found out that users' designs are not only attractive for themselves, yet in high demand also among other users. Therefore, based on the result of the study, users serve as very promising research tools and could be highly exploited for guiding a firm's new product development via operating through online functions.

The virtual customer integration offers a valuable way of possible involvement of customers in purpose for research and product design. The web-based communication

[56] Prugl, R. and Schreier, M. (2006). *Learning from leading-edge customers at the Sims: opening up the innovation process using toolkits*. R&D Management. 36. (3): 237-247.

capabilities enhance the three crucial aspects of the virtual customer integration: communication, conceptualization and computation (Dahan and Hauser, 2002: 333). The figure below demonstrates how these three web-based capabilities overcome the challenges for interaction, which normally are very time-consuming.

Figure 4: Virtual customer research exploits three dimensions of the web.



Source: (Dahan and Hauser, 2002: 333).

Communication via the Internet is fast and efficient. Theoretically, it is possible to gather complicated market research information within days, whereas previously these procedures took weeks (Dahan and Hauser, 2002: 333). Graphical solutions available and the possibility of new creative image creations promote conceptualization capabilities. By conceptualization techniques new virtual products and product features may be created and proposed for evaluation. This is proposed as much more cost and time effective method, rather than the physical prototype creations. Computation then enables research to make

modifications into fixed survey designs by adapting web-pages even meanwhile a participant takes part in a survey.

Dahan and Hauser have developed six virtual methods to gain insight via a web-based customer input systems. These methods include different ways to engaged customers in online-interviewing and interactions. Features and functions and be easily drawn and placed online to gain impacts from willing respondents.

The three functions of communication, conceptualization and computation offer an effective and efficient way to incorporate customer views into the hands of product development teams. New information and advances in technology decrease constantly the time and costs of these information exchanges. Furthermore, product development pursued by online design and research integrations offer a fast and cost efficient methodology for companies.

3.2 Criticism of Models

The above mentioned three models of open innovation offer interesting measures to integrate customers' into product development processes. However, there seem to be various critical views towards the proposed models. Criticism directed towards these model processes will be examined next.

3.2.1 Not Invented Here Syndrome

A criticism put forth by researchers regarding the use of customer integration models is also a syndrome called 'Not Invented Here' (Chesbrough, 2003: 288). As customers are

incorporated within processes to create and design, before their ideas or designs are incorporated into product development they must receive consent from the firm's product development teams. However, a company that previously used the Closed Innovation approach might still view their own ideas more superior than what the external environment provides.

There are case examples that support this 'syndrome' idea. For example product engineers at Apple Computer in the late 1980s rejected the external ideas such as handheld computers, which was then phrased as 'not invented here' reaction (Kaplan, 1996: 156).[57]

3.2.2 Intellectual Property Rights

When acquiring concept ideas from customers', an important question raised is intellectual property rights (IPR). When gaining consumer information by utilizing the customer integration methodologies, questions rise regarding the ownership of the information. Who owns the information, and how are the actual user innovators compensated for their work. These questions remain an uncertain subject matter within the framework.

Intellectual property matters are highly dependent on the integration method and situation. Agreements upon compensations are subject to specific contracts possibly made between the parties. Yet still intellectual property rights impose various challenges towards the open innovation framework.

[57] Kaplan, J. (1996). *Startup: A Silicon Valley Adventure.* Paperback edn. New York. Penguin.

According to researchers, however, free revealing of product and process designs is a defining characteristic of open innovation (von Hippel and von Krogh, 2006: 295).[58] According to von Hippel and von Krogh free revealing is important in order that others can use, learn, and improve the designs created. They also claim that free revealing actually is beneficial to society and innovator; exclaiming, that although a user would get a patent on their innovation, imitations would most likely enter the markets soon (von Hippel and von Krogh, 2006: 295-303).

In my opinion, a good example of free revealing, where it has been beneficial for innovator and society is the example of Linux; where users provide each other solutions. It started off as a software package where people could create their own solutions. During the years, enterprises even have adopted its use, to enable new solutions and applications to be created. Through the programs of Linux, users share information and even create manuals for their inventions, in order for others to take advantage of its use. Linux has been adopted by lead users, whose objectives are to extend the programs currently available.

3.2.3 Motivating Customers to Innovate

What also seems to portray a challenge for the Open Innovation approach is how to motivate customers to provide knowledge. Researchers such as von Hippel and Katz (2002)[59] put forth that lead-users should be utilized. Due to the fact, that they are motivated by their own inspiration of finding new solutions.

[58] von Hippel, E. and von Krogh, G. (2006). *Free Revealing and the Private Collective Modle for Innovation Incentives.* R&D Management 36, (3). 295-306.
[59] von Hippel, E and Katz, R (2002). *Shifting Innovation to users via toolkits.* Management Science, 48,(7). 821-834.

A study constructed around the lead user idea generation processes (Lilien et al., 2002[60], cited in Prugl and Schreier, 2006: 247), demonstrated that lead users' concept ideas for new product development were eight times higher in average sales potential than traditionally developed product concepts. This significantly implies that utilizing lead users within the proposed methodologies of customer integrations could provide useful results in comparison to once screening a broad user market.

It must be taken into consideration, that not all customers are lead users. Rogers (1995) claims that only 2.5 percent of individuals that are the end-customers, claim the role of an innovator. However, according to him also, lead users' interest in new ideas leads them to create new solutions. Although this is a significantly small percentage of lead users whose knowledge could be utilized, it must be recognized that their true interest within the context of the product or solution, drives them to bring about advanced ideas regarding its use. Therefore, although lead users comprise a small portion in comparison to all users, their information regarding a specific product could result as very advantageous.

The utilization of lead users seem to be highly beneficial according to prior research conducted. However, a question remains regarding how to find and identify lead users. Recent research, however, has pointed out pyramiding (von Hippel et al. 2005), a technique where companies ask other lead users to suggest possible candidates. Researchers (Pillar and Walcher, 2006: 309)[61], however point out also self selection

[60] Lilian, G.L., Morrison, P.D., Searls. K., Sonnack, M. and von Hippel, E (2002). *Performance Assessment of the Lead User Idea Generation Process.* Management Science, 48, (8). 1042-1059

[61] Pillar F.T. and Walcher, D. (2006). *Toolkits for idea competitions: A novel method to integrate users in new product development.* R&D Management. 36, (3). pp 307-316.

method, where lead users are offered a measure so that they can identify themselves to the manufacturer and prove their lead user abilities.

In personal perception the self selection method is increasing in use. Today, many companies launch competitions for customers where they attract customer's to design a new product in reward for a prize. A current example of it on the Dutch television, is the Frito-Lays potato chips competition, where customers are offered to create a new potato-chip taste in reward for 90,000 Euros.

3.2.4 Lack of Empirical research

Criticism of Models is often laid upon the justifications that these are conceptualizations of innovation. Lack of actual empirical research on the proposals of the open innovation approach seems to be the conclusion of many researchers (Chesbrough, Vanhavebeke and West, 2006: 286).

The limited amount of research conducted upon the models, indicates that there are various questions regarding their usability. This study aims to stimulate the stream of research by gaining insight from primary research, indicating the actual operations of companies. The lack of empiricism and yet the fact that these models have been proposed from various researchers, adds fuel to the objective of my study. The intention is to engage within searching for examples from primary research interviewees, and thus arriving upon first findings on the implementations of open innovation models.

4. METHODOLOGY

4.1 Research Approach

The nature of this research has been a qualitative research to gain an understanding of the participative efforts of innovation processes. The methodology used has been the construction of six in-depth interviews (Appendix 1) from which primary qualitative outputs have been the centre of analysis.

The research approach, for the interviews was the construction of a set of questions, which were used as a guideline. These questions (Appendix 2) were used as the basis from which different perspectives on the innovation definition, innovation management procedures and interpretations of the uses of customer integration models were the basis for the analysis drawn.

Constructing the primary research, the perspectives of commerce people from manufacturing firms and business consultants have been utilized. Candidates with vast knowledge and experience have been interviewed.

Although the research itself concerns actions taken within manufacturing firms, I have chosen to analyse the perspectives of consultants also. This is due to the fact that they have acquired a vast knowledge on the markets and within manufacturing firms before engaging in consultancy, but most importantly because they are often very aware of strategic models.

Research finding based upon primary interviews are based on the conceptualizations of the subject of innovation within organizations and the means of its exploitation. Findings are therefore, a means of drawing a comprehensive image of the innovation management processes. The question whether or not customers should be integrated into product development is opposed.

4.2 Research Objective

Study's aim is to first provide a theoretical framework of the subject. From the analysis of the theory and models proposed, an organizational perspective is gathered from the interviews. Within the study, the intention is to enhance understanding of how companies arrive at innovations and more thoroughly, how they spark innovations for product development. The objective is to view to what extent the interviewed companies are open within their innovation procedures and methodologies they use.

From the insight gained and gathered from the interviews the intent is to draw up an analysis. The aim is to examine the interviewees' perceptions towards the open innovation framework as well as the usage of models proposed. The objective of the study is to inspect whether the proposed theory is actually applicable in practise among a wide spread of industries and whether it is employed in organizations' business practice.

My mission with the construction of this study is to gain an understanding of companies' awareness and use of the proposed open innovation models. My vision, before executing the study, has been that users are not utilized to their maximum potential in today's business practice. By incorporating these models into use, new innovative idea generations could be reached, in order to optimize innovation management.

5. PRIMARY RESEARCH FINDINGS

5.1 Defining Innovation

Examining the Definition of Innovation

When proposing the question of "define innovation", very different reactions were received from the interviews. Innovation was commonly found to be a difficult concept to define due to its complex nature. Most definitions included the notion that innovation is the creation of creative ideas enhancing the product portfolios. Below is presented briefly the perceptions of the definition of innovation:

Some interviewees defined innovation as being something completely new, whereas some perceive it was taking an old product and altering its use in a creative way, providing a new product idea.

- *Innovation is new products that are completely new for the product portfolio.*[62]

- *The capacity to create new.*[63]

- *It is the creative use of a good, service, or idea that is already available.*[64]

- *The "Salt" of our products, innovation differentiates our products from competitors.*[65]

A consultant perception was that innovation and profit are intertwined; innovation is something that creates growth, market share and profit for organizations. Whereas another consultant, stated that the word innovation is over used by organizations and its meaning is difficult to interpret.

- *Enhancement of productivity and thus market share.*[66]

[62] (Appendix 3)
[63] (Appendix 5)
[64] (Appendix 8)
[65] (Appendix 4)

- *"Abstract and too broad." The word should be used nowadays with more consideration.*[67]

It was observable how manufacturing company interviewees used the word innovation constantly and agreed upon the fact that the term is frequently in use within their business practise. A consultant however, approached the definition from a researcher perspective, claiming that its use is too broad to comprehend a specific meaning.

However, it was explicitly emphasized that innovation is capable to strive naturally only if the environment is open for information flows; whereas, information should flow freely inwards and outwards of organizations. This significantly supports the ideological frame work of open innovation. It was also emphasized that companies should pay much attention to the management processes of innovation. Accordingly to monitor the implementation processes that would create innovative idea generations. It was also stated that, occasionally innovative ideas are too expensive to execute and produce (examples discussed later), in other words return of investment becomes negative. Therefore, managing innovation has a crucial function to judge whether projects should be undertaken. Innovation to be manageable however, poses a great challenge.

5.2 Managing Innovation

Questioning the notion of Innovation Management

As mentioned already in a previous section of this study (*1.3 Innovation Management*), defining innovation management and the implementations of a managements practice proposes a challenging task. There is no single process that would lead for successful innovation management. Only guiding procedural designs and models can be constructed.

[66] (Appendix 7)
[67] (Appendix 6)

The aim of this section of findings, was to understand how interviewed candidates viewed innovation management and particularly the processes through which they perceived it to occur.

Conflicting interpretations of the expression 'innovation' were provided from the interviews, as demonstrated in the previous section. However, it was generally agreed that innovation can be managed to certain extent. The processes through which innovation transpires, were however, differently interpreted. In this section the different propositions for innovation management will be discussed.

When presented with the question "can innovation be managed" it was stated that innovation could be guided through structural procedures and processes however, innovation could not blossom in an environment practicing strict control and narrow structure (Appendix 8). It was clearly stressed that the exchange of ideas promotes innovation. Measures for management procedures to be undertaken, which could contribute to the increase of new innovative idea generations (Appendix 5, Appendix 8), were implicated as the following:

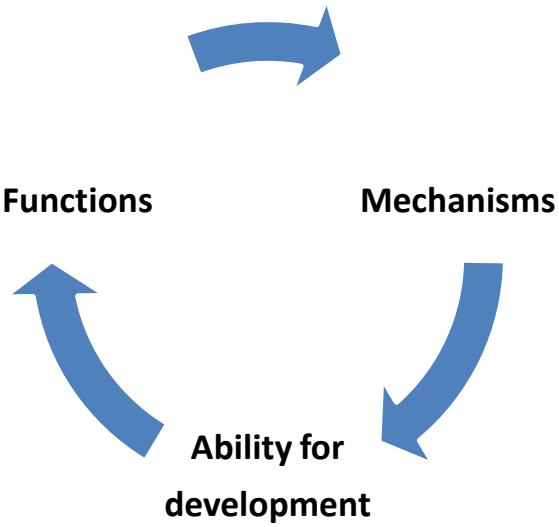
- Organization of brainstorming sessions
- Development of training and programs, which build upon innovation awareness and techniques
- Changing ways of traditional thinking via recent successful business cases

An interviewed consultant at Vision Leaders Consulting (Appendix 6) provided an assumption that Innovation management is knowledge management; where according to him, knowledge management includes the interactions of tacit and explicit knowledge. He

exclaimed that within this framework there are accordingly three levels which should be synchronized together with their operations in order to produce a context where information and thus innovation may spark. These three levels include the recognition of functions, mechanisms, and the ability for development processes. These three levels collaborating should create commons in which teams integrate and operate together and are able to generate creative innovative ideas. Synchronizing these terms will create dynamic ability from which innovation may arise from.

As portrayed in the figure 5 below, the functions represent the findings of new ways of doing or conducting a specific action. The mechanism on the other hand presents operations and operators producing specific models, and the last ability for development include the dynamic capabilities to create models for processes.

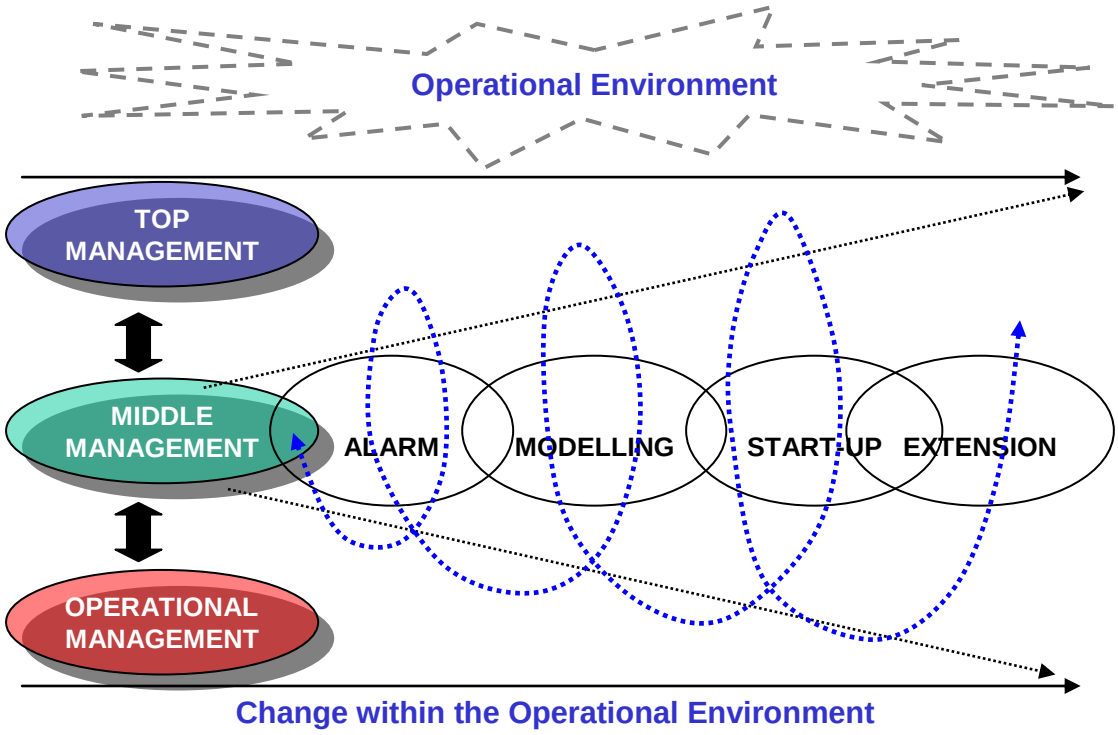
Figure 5: Demonstrates the synchronization of three levels which direct innovation



Source: Interviewee Matti Virkki VisionLeaders Consulting

The interviewee (Appendix 6), extended his viewpoint, by exclaiming factors regarding the launch processes of innovation management. This standpoint claims that the management processes should begin to be generated from middle management, where, as an objective, there would be changes implemented within the operational environment. Different stages that would be undergone during change in the environment would include, alarm, modelling, start-up and extension. These phases would linearly emerge, from which new integrated structures of models for innovation would result. The diagram below demonstrates the course of the phases.

Figure 6: Launch process of innovation management



Source: Interviewee Matti Virkki
VisionLeaders Consulting

Another consultant interviewed at ConPro Consulting (Appendix 7), raised into attention that information, communication and the costs of these transactions have significantly affected the processes of innovation management. Technological advances, fast information in- and outflows enhance innovation and by utilizing them, more can be developed. This finding, as mentioned within the theoretical framework, is theoretically supported according to research stating that technology and communication enhance the creation and also the adoption of new innovations (Prugl and Schreier, 2006).

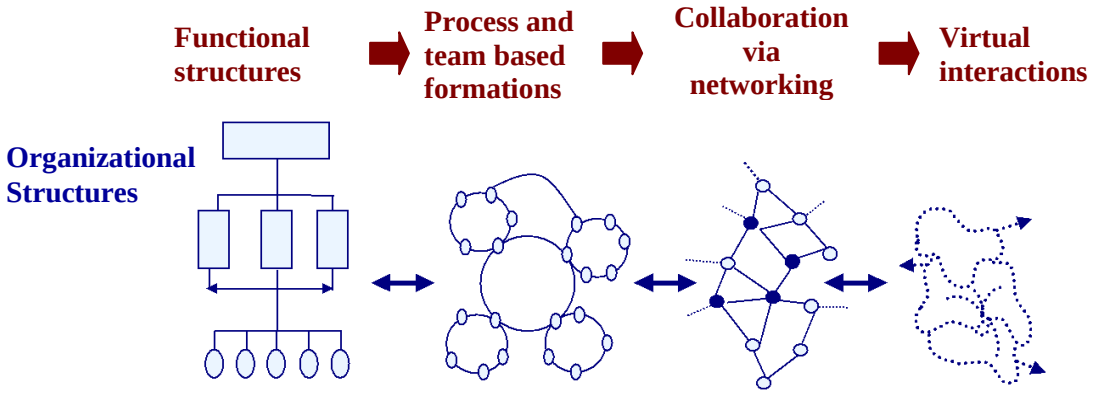
His perspective portrayed that in order to arrive at innovative idea generations and an organization to be open for innovation, as well as involving different parties into the processes, its must embrace change also on the managerial level. According to him, this change should also be explicitly nourished on the middle management area, form where network and collaboration connection can be extended and flourished from.

The standpoint highlights how the organizational structures of management, as wells as operational models have undergone huge transformations. He highlights that there has been a shift from strict structural models towards more open models beginning from the middle management to enhance team collaboration, which later can evolve into the creation of vast network structures.

The consultant highlights there has been a shift from strict structural models to more team-based learning environment. According to him, the pressure to succeed on global markets pushes companies to create networks and collaborative efforts with customers and partners, beyond the firm's internal boundaries, supporting the notions of the open innovation model. He also states that previously geographical distance hindered the spread of ideas and knowledge within organizations as well as the environment it operated within. People

would leave their jobs, and by doing so they would take along the company information. However, technology and the ability of virtual interaction have significantly promoted the speed and spread of exchanging ideas. This he specially highlights, has had a tremendous impact on the processes of innovation management. The figure 7 as presented below, demonstrates the shifts from the traditional hierarchical structural models, which have been shifted to more collaborative working environments.

Figure 7: demonstrates the transformation of the organizational structures.



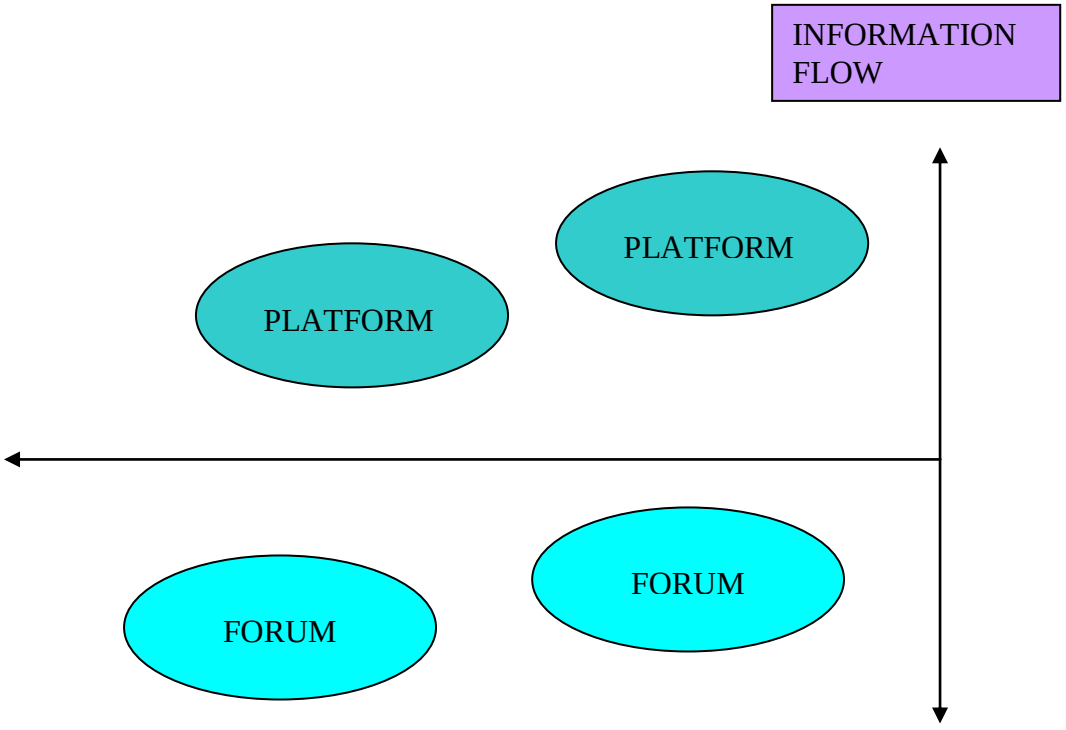
Source: Interviewee Pentti Jukola
ConPro Consulting

According to the particular interviewee's perspective, innovation management is based upon the creation of forums and platforms through which information flows operate. This perspective includes innovation management portrayed as the creation and collaboration of team efforts and information exchanges.

In his view, the forums are common teams, where organizational partners and collaborates may also be involved. These teams create key forums for knowledge to be shared amongst and where business processes are taken forth. The platforms on the other hand are

information platforms which seek for new sources of information (such as users) and network partners. By utilizing this simple Forum-Platform base integration to gain various networks; partners and customers may be gained and their knowledge exploited. The figure 8, as below demonstrates the course of the forum-platform integration. Accordingly, these two together, act as a way to reach potential new knowledge.

Figure 8: Demonstrates the Forum-Platform Integration Model



Source: Interviewee Pentti Jukola ConPro Consulting

The interviews suggest that in order for new ideas to be created, networking is highly important. The management consultant perspectives provide insights into partnering and managing communication networks to be able to access a wide knowledge base that supports innovative idea generation. These procedural assumptions nourish the theoretical framework of the open innovation, where externalities are used.

The above indicated innovation management process accounts, provided by the interviewed consultants, direct the procedural implication of innovation management within an open context. The open innovation model also assumes that externalities should be utilized, as it requires the flows of ideas. If something blocks the idea flows the entire process will be stopped. Therefore, it proposes a change in perspectives and practices that questions what exactly needs to be open within the operational environment.

It has been suggested, according to primary research, that the utilization of networks and collaboration with partners influence innovation. Stating that the middle management should remain open, in order to gain new ideas and create common network places to share information. However, this also proposes, a difficult question regarding how and to what extent these external networks and information flows should be open. Although various attempts were provided to create an understanding of innovation management, in conclusion, many procedural implications still pose various challenges upon the definition of innovation management.

5.3 Customer Integration

Customer Integration Models in Execution

The interviews provided a mutual perception of the fact that customers should be highly exploited for information, knowledge and integrated within product development processes. However, to what extent they could be integrated from an organizational view was different.

When presenting the models of customer integration methods, it was recognized that some were in practise. It was evident that companies are trying to analyse customer based research data and purchase behaviours in order to comprehend their customer base wants. Comparison methods to competitive brands are also widely in use. Surveys and research groups are often applied in order to integrate customers and gain knowledge from them.

Implementations Approaches

Different implementation approaches regarding customer integration models were provided by interviewees'. They all possessed the metal models that customer's are to be used however, executions had distinct differences.

The finding from the interviewee at Skoda (Appendix 5) was that the specific company had launched a campaign "Everybody Gives Ideas" where they got all workers and customers into providing thoughts on how to improve productivity or decrease the cost activity of a specific car brand engine. The project was executed on the TDI, standing for Turbo Direct Injection on the diesel engines of the Volkswagen cars. Afterwards they had designated a complete department that would study the ideas and the ones found worthwhile would be

executed and implemented in practice. According to the company this provided new insight into customer wants and the implementation of this created huge savings.

Interviewee at Agilent Technologies claimed that they visit their customers' and customer sites very regularly. These visits are conducted by engineers and development managers/planners that gather feedbacks on the current products, after which the aim is to gain useful information of customer wants and to pursue to build future products that would suit their requirements. At Agilent Technologies they have appointed teams which constitute from product planners. Their job is to take care of creating a framework of developing a product. This team works to define the specifications creating a wish list of the specification that the company would like to have in the product. Feedback on this comes from the R&D team and from the customers that represent an important part on the development. The company highly promotes interaction between its customers. They try to make their customers' think "outside the box" as the interviewee refers to. They try to incorporate customers' wants and build solutions for their purposes.

It is observable how both companies, Skoda and Agilent state that their intention is to have internal teams or organizations whose task is to find new innovative ideas that could be executed into product developments creating value to customers. As mentioned most of the information for these processes, are gathered from the customers.

When referring to the open model of innovation, the perspective was that customers can be utilized and should be used to create an awareness of market drivers. Indeed, all companies try to implement the customers 'voice' into their offerings. However the extent to which

direct end-users can be integrated without large risks is relevantly small according to the interview perspectives.

Unilever was utilizing information from the virtual communities on the Internet. They had launched different online competitions from which they were also able to gather specific customer information. To a certain extent this also supports the model of virtual customer integration of Dahan and Hauser (2002). They claimed also that due to the company's global presence they heavily relied upon information that lead users provided for them via the Internet. Apparently, customers voluntarily offer and write much of product development ideas and share them freely. This significantly supports the theories and studies of lead users innovating and also freely sharing that information (Brown and Eisenhardt, 1995; von Hippel, 2002).

Unilever had also executed empathic design methods, but only in countries where large heterogeneity among product demands was present. This supports the research model of Leonard and Rayport (1997). Unilever has been utilizing the empathic design in China, seeking for new innovative ideas. Its concept Centre in Shanghai attracts hundreds of people everyday,[68] where people are offered various services and shops for beauty and personal care. What the customers' do not know, is that researchers are constantly monitoring them and their use of products, behind one way mirrors.[69] This centre is just a small part of the company's efforts of pushing their R&D efforts in China. According to the Economist[70], many companies nowadays are seeking similar methods on the Asian markets to gain insight into new innovations. According to the source, companies are even

[68] The Economist. (2010). A Special Report on Innovation in Emerging Markets. Easier said then done: Emerging-market consumers are hard to reach. The Economist. (April 17th- 23rd). 395, (8678): p.7
[69] Ibid p.7
[70] Ibid. p.7

placing young employees to stay with rural area families in China and India, to monitor their everyday lives and product uses.[71] Also, many companies have begun to employ anthropologists to study people's behaviour with products,[72] thus utilizing the empathic design model of open innovation.

Globalization and the emerging-markets are demonstrating the impact of how companies are actually seeking for knowledge and innovation from users. Trying to gain a share of the large market, they are pursuing user-centred innovation methods to understand product use and seek for new innovative ideas.

Collaboration with Partners

When looking into external sources of knowledge, it is evident that companies have turned towards the outside environment to collaborate with different partners. The product portfolios of the company are vast, where each product needs specific information that originates from research. In order to pay the required attention for each product or service provided, and for new innovative ideas to be generated, companies admit that new management models of innovation have to be emphasized.

Unilever provided an example for their reasons of collaborating. As an example they provided the health care grocery products which are part of their product portfolio. In order for the company to gain an awareness of these products attributes and needs, internal product management is not enough. Instead they need to have access to more detailed

[71] The Economist. (2010). A Special Report on Innovation in Emerging Markets. Easier said then done: Emerging-market consumers are hard to reach. The Economist. (April 17th- 23rd). 395, (8678) p.8
[72] Ibid p.8

information, health and nutrition expertise which they acquire through extending their collaborations to partnering.

Reasons provided for this consequently was also the impacts of globalization. The fact that Unilever's products are present worldwide, they need to remain their competitive position and this on the other hand means that they need to be innovative. Alliances and partnering also enables them to have access to specific markets where it would otherwise be difficult to enter and to create an understanding of specific market wants.

Agilent exploits customer knowledge gathered from customer visits, yet they also promote various university programs all over the world, where they acquire new knowledge from engineering students. They not only exploit new graduates but applied research also. They also mention that with university partners they include professor exchanges, from which students obtain different perspectives. As very important they highlight that the company R&D people are very active in the most important technical committees sharing knowledge and experience with the technical community.

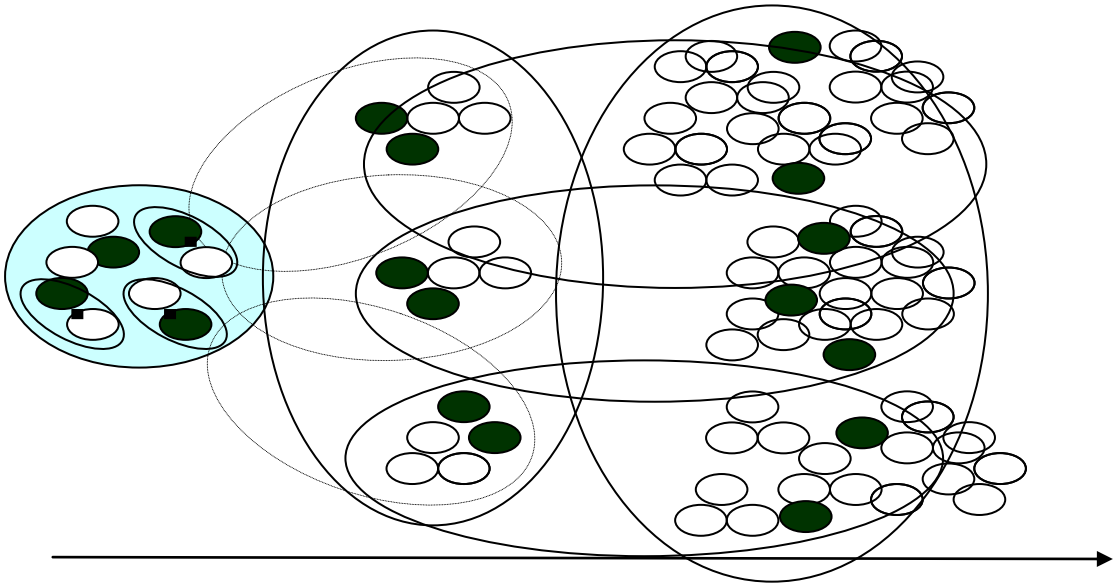
A consultant from VisionLeaders, had been involved within a large customer integration process. Their aim had been to integrate farmers with producers and channel partners. The project had been started by creating platforms where people within the industry could communicate and exchange information. Many volunteer farmers were incorporated within these procedures and valuable information was gained from them. The idea was that GPS systems would be installed within farming equipment, which would indicate the requirements of nutrition and other requirements for the soil at that specific location. This

project included many people from the farming industry and various other team members from top engineers to consultants.

The information of what farmers needed in order for their daily activities of work, when and where they needed such resources were integrated into a database system. Due to this database creation which was capable to be constructed after farmers inputs of knowledge, logistics management and channel management were highly optimized. The project lasted for five years. This later established company became known as GrowHow.

The outcome of the process of integrating different participants and their knowledge together provided a new innovative mechanism for agricultural functions. Today, GrowHow has 70 000 end-users. This integration model became a dominant model which is widely in use all around EU premises. The interviewee is currently writing their PhD regarding the management processes of this project. Figure 9 as below, was portrayed by the interviewee, demonstrating the construction of networks and their spread, once users and partners are integrated within processes.

Figure 9: Represents the growth of networks and information exchange building the knowledge base of customers



Source: Interviewee Matti Virkki
VisionLeaders Consulting

These examples of integration implementation processes signify that not only are the models proposed within the framework in use, but also these theoretical models have been incorporated on different levels of understanding and execution.

5.4 Benefits of Open Innovation

From the interviews a mutual understanding was interpreted that innovation should be open. Customer information is essential when understanding market wants and drivers. It was viewed that the methodologies of customer integration do offer valuable information to companies and should definitely be utilized. The exchange of information is essential in business practice on many levels; and if you do not begin with listening to your customer, you will never fully reach them or be able to satisfy their wants.

5.5 Criticism of Models

Emphatic, Tool-kit and Virtual Customer

The models of customer integration were regarded by candidates interviewed, as interesting and valuable. Yet it was strongly emphasized that it should be remembered that these are theoretical representations which lack significant empirical investigations. One of the main criticisms that arose from the interview consultations was that models which define specific actions to be executed also represent heuristic processes, where optimal solutions are searched (Appendix 6). The majority view towards these models was that they open valuable ideas, however cannot be strictly interpreted into practice.

Another interesting perspective towards it came from a representative of a global multinational firm. According to their view, these models would be difficult to implement within a global firm where resources provided are divided upon each local office. Due to cultural differences, results gained from researches could not be broadly generalized.

5.6 Risk

The necessity and the advantages gained from customer integration processes are widely recognized by theorist as well as candidates' interviewed, yet little research or attention had been laid upon the inherent risks of such actions. Within this research the aim was also to enquire and discover these risks.

The question raised very different and opposing perspectives. Firstly it was acknowledged that company "know-how" should remain confidential. It was also pointed out that once integrating customers, there is a risk that customers do not even know what they want, or

their wants might be wrongly interpreted. These models and integration processes are highly time and resource consuming; highlighting that these are not cost effective search methods. Also time is a challenge in many industries. In order to sustain a competitive advantage you must be first and you must be able to differentiate yourself from rival offerings.

Agilent Technologies (Appendix 4) also claimed that their history of practice had been full of examples where customer needs were integrated, yet projects ended as failure. According to them occasionally the customer's wants had been so specific towards their individual need that commercially the idea and production had no value and the projects had ended as failures.

The consultant perspectives provided contained an opposing view to the prior. Instead they stressed that as integration processes include customers, business partners and collaborates, and these development processes last for long periods of time during which commitment and trust will decrease the rate of risk. The view raised the conception, that as customers are at the centre of creating solutions for themselves, their motivation increases towards the project, as does it also result in a positive customer relationship management (Appendix 6).

It was highly perceived that commitment is essential once implementing such processes. Also it was noted that when it came to execution, these long lasting methods should incorporate all elements of innovation processes, and this could be difficult to manage. Another viewpoint (Appendix 6) provided a very important question regarding the

management; as these efforts are collaborative, who is the one who manages and is the one in control of the project?

6. CONCLUSION

6.1 Findings

The study's aim was to deepen the understanding of innovation as an open process. The objective was to examine how companies are utilizing customer knowledge to optimize their innovation processes as suggested by the open innovation framework. From the primary research different perspectives and statements were obtained, examined and analysed.

From the primary research it was found out that the framework of open innovation to an extent is adopted within companies' business practices today. Open innovation models, such as the empathic, tool-kit and virtual customer seem to be gaining a larger awareness among companies. These models have been experimented in practice, however, their use has not been fully incorporated as optimizing innovation processes.

It must be recognized that the open innovation framework has emerged slowly, whereas companies are recognizing the benefits of exploiting users' knowledge. Intensive market competition may push companies in the near future to elaborate on their open innovation framework methodologies, when these models could be suggested for adoption.

From the acquired research it was evident that innovation processes in organizations are opening up to the external environments. The notions of open innovation are widely recognized regarding its context as well as offered value. Yet, from an open innovation approach, the extent to which companies are open seems to be a slow work in progress. Some companies still seem to possess a mental model that pursues confidence in internal

capability for innovation and competitive advantage this brings upon them. Risks of loosing "know how" to customers is seen as the most inherent risk.

The theory of open innovation offers an interesting perspective for the twenty-first century business practice. Models of integration methods provide insight to ways of incorporating parties and generating different innovative ideas. Yet according to the research, these models are not incorporated in practice to great extent.

However, as the theoretical framework of integrating customers into product development is gaining rapid awareness, it would only suggest that these models would slowly emerge and become promising tools for innovative idea generation in the future. The models of empathic design, tool-kit and virtual customer can possibly provide suitable apparatus for innovation management processes.

In the course of this study the arrived understanding is that open innovation and its assumed model approaches as a theme is debatable and divides perspectives in the ways to form these integration models. The lack of empirical evidence within the proposed theoretical frameworks, do indeed pose a challenge for future research.
Laurensen and Salter (2005: 25) concluded that 'until more research is undertaken on the evolution of search for innovation over time, the full implications of possible movement towards 'Open Innovation' will not be fully understood**.** Therefore, the constant evolving of industries and changes in market dynamics will demonstrate the paths for the futures of innovation generation processes.

This particular thesis study examined the findings that were drawn from three consultant perspectives and three different manufacturing perspectives. Although the companies markets and settings were diverse and very different, their approach towards the open innovation was still very similar. From this it could be added, that regardless the market there has been a definite shift towards opening up for externalities and the view of innovation is becoming increasingly alike across companies as well as industries.

Where does innovation begin from? – This study has demonstrated that innovation begins from capturing good ideas. Optimization of innovation management is highly dependent and suggested to be founded from networking and partnering among industry and market related collaborates. The study proposes that collaborative efforts of business practise will have an effect on a company's competitive advantage as well as the presence and access among the global markets.

6.2 Limitations of Study

The research within this study was conducted on qualitative in-depth interviews. These interviews were applied at three manufacturing and three consulting companies in order to search for coherence in data obtained. A limitation from an interview point is that it is hard to define a sufficient number for interviews to conduct. Six interviews were used in this paper as point of discussion.

6.3 Future Research

There are clear opportunities for future research to be conducted upon model development as well as empirical studies. Future research could also be directed at drawing industry analysis about the capabilities to utilize customers in integration processes. Also research could be deepened upon the uses and perceived practicality of the integration models presented within the study.

7. RECOMMENDATIONS

The study's aim was to deepen the understanding of innovation as an open process and customer integration models put forth by well established researchers. From the primary research the work obtained different perspectives and statements which were examined and analysed.

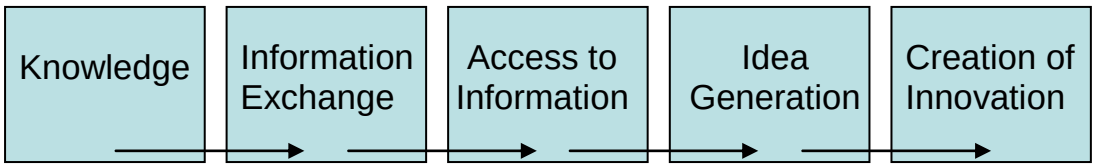
The aim was to draw an evaluation regarding models proposed from the open innovation framework. These models are highly criticized due to their lack of empirical research. Much of all research states that these models offer new ways of conceptualizations yet due to the lack of empiricism around the subject many questions regarding their use and usability remain. Problem arises with the nature of innovation. Since there is not actual structure for the process of innovation, it would seem remarkable if it could be measured or scientifically proven.

The study suggests that innovation is knowledge management. Starting from the innovation processes the study suggests that in order to optimize innovation generation the processes should be opened in multiple directions. Beyond opening to many externalities,

various different capabilities should also be incorporated. Therefore, all incorporated networks and collaborates should have access to information, as information exchange promotes idea generation, which on the other hand elevates the creation of innovative ideas.

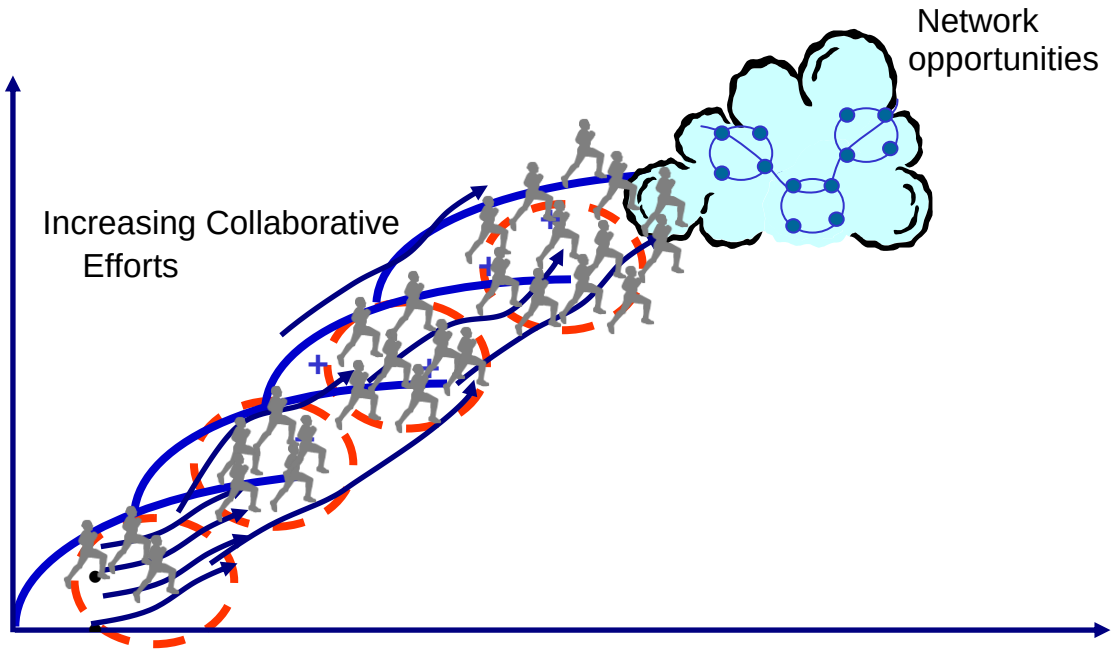
The figure 10 as below, demonstrates my personal drawing of my understanding of the innovation process build-up, which originates from knowledge, and proceeds towards the creation of an innovative idea.

Figure 10: Demonstrates Innovation Process within an Open Information Environment



The study suggests that companies striving for innovation should turn towards lead users, who possess a high degree of product-related information. Integrating partners, collaborative efforts and users into the processes of innovation management, does optimize the speed and quantity of innovative data to be gathered. Collaborating with users, which can constitute from both private and commercial users, will result in vast and wide spread network opportunities that can optimize innovation management and thus the creation of new product developments. This is demonstrated in the figure below.

Figure 11: Demonstrates the increase in collaboration having an effect on network opportunities



Source: Interviewee Matti Virkki
VisionLeaders Consulting

Management Challenges

The open innovation framework poses challenges upon management demands - which users to exploit and what channels networks to keep open? These have to be justified, in personal perception, according to the networks strengths, weaknesses, opportunities and threats.

From information gained from users, evaluations regarding value and differentiation of products, need to be drawn before product development execution. It must be remembered that the optimal aim of collaboration is to get products on the market and deliver value to customers. Therefore, the ultimate objective of open innovation is to build deep

relationships and networks that provide insight, from which innovative product portfolios may be constructed.

Risk Management

The potential for external environments engaging in product development has been put forth by the theories and models portrayed. The concepts are acknowledged and the models are indeed utilized to some extent within organizations. However, open innovation models and designs are still far from being new product development practice in many companies today. The offered benefits of customer integration are undoubtedly accepted, yet the risks are also recognized to an extent.

Indeed the risks of integrating customers are wide-ranging from disloyal customer integrations, company's loss of "know how" to company's dependence on customer. These only portray a few of the risks that can be associated within such practice. The consequences of these risks could be enormous. They could result in financial disasters if investing in wrong products or competitors gaining confidential information through disloyal integrated customers.

Although these risks are definitely to be taken into consideration, and are strong arguments against customer integration, they should not lead to the sole reasons for abandoning the open innovation concepts. Instead the negative and the positive should be weighed accordingly and after which justifications for processes should be drawn upon. With regarding inspecting on the inherent risks, it should first be clarified which risks are of the most important for the company to recognize. Starting from this, risk management procedures could be constructed.

On the contrary, risks could also be minimized, as organizations involve customers in the processes of product development. The involvement could possibly result in commitment and the feeling of responsibility, which eventually would contribute to the decreasing rate of risk and positively impacting customer relationship management.

Impact of Market Changes

Globalization has changed the market dynamics of today to great extent, and pushes for further changes to occur. While globalization is offering various market expansion opportunities, the pressures to innovate and improve product offerings are increasing, as they have a fundamental effect on gaining a competitive market position. As competition intensifies in the global landscape of industries, the identification of strategic measures to promote different capabilities enhancing innovation are becoming essential. As the study suggests, competitive advantage is gained from being able to exploit ideas and knowledge from the surroundings to generate innovation.

The economic trends of globalization, outsourcing and networking will further give rise to the open innovation model, as they contribute to the increase in innovative idea generations. In a personal perception, the open innovation framework offers valuable methodologies to integrate customers to enhance the optimization of innovation management processes. As this study demonstrates these methodologies are utilized to a certain extent already. However, it is very likely that these will become very important research tools and will likely to be pursued more in the future.

The open innovation models, presented within this study, portray strategies, which enable companies to create diversity and optimization among their innovation practices. As the quest for new innovative ideas and solutions will continue, this will contribute to the development of new search strategies, from which I believe new radical business models will emerge. In the future, the models presented within the study will most likely reflect only a few approaches to generate innovative ideas. Presumably, in the future, there will be more models to trail and to engage business practice among.

BIBLIOGRAPHY

- Ahlstrom P. and Westbrook, R. (1999). *Implications of Mass Customization for Operations Management: an exploratory survey.* International Journal of Operations and Product Management. 19 (2): 262-272

- Angel M.S.P. and van de Ven, H.L. (2000). *Research on Innovation Management: The Minnesota Studies.* Paperback ed. Oxford University Press.

- Birkenshaw, J., Hamel, G., and Mol, M.J. (2008). *Management Innovation. Academy of Management Review 2008.* 33 (4): 825-845

- Borenstein, D. and Frutos J.D.. (2004). *A framework to support customer – company interaction in mass customization environments.* Computers in Industry. 54 (2): 115-135.

- Brown SL, and Eisenhardt KM. (1995). *Product development: past research, present findings and future directions.* Academy of Management Review. 20 (2): 343-378.

- Brown J.S. and Duguid, P. (2000). *The Social Life of Information.* Harvard Business School Press. Boston, MA.

- Chandler, A. D., Jr. (1977*). The Visible Hand: The Managerial Revolution in American Business.* Cambridge, MA: Belknap Press.

- Chandler, A. D., Jr. (1990*). Scale and Scope: The Dynamics of Industrial Capitalism.* Cambridge, MA: Belknap Press.

- Chesbrough, H. (2003). *Open Innovation: The New Imperative for Creating and Profiting from Technology*. Harvard University Press: Cambridge, MA.

- Chesbrough, H. Vanhaverbeke, W. and West, J. (2006). *Open Innovation: Researching a New Paradigm.* Oxford University Press: New York.

- Clark, G.L., Gertler, M.S. Feldman, M.P. (2000). *The Oxford Handbook of Economic Geography.* Oxford University Press.

- Cohen, WM, Levinthal DA. (1990). *Absorptive Capacity: A new perspective of learning and innovation.* Administrative Science Quarterly 35 (1): 128-152

- Conway, S. (1995*). Information Boundary-Spanning Communication in the innovation process: an empirical study*. Technology Analysis and Strategic Management 7 (3), 327.

- Dahan, E. and Hauser, J.R. (2002). *The Virtual Customer*. The Journal of Product Innovation Management. 19 (5): 332- 353.
- The Economist. *A Special Report on Innovation in Emerging Markets. Easier said then done: Emerging-market consumers are hard to reach.* The Economist. (April 17th- 23rd). 395, (8678): 3-16

- Franke, N and Piller , F. (2004) *Value creation by toolkit for user innovation and deisgn: the case of the watch market.* Journal of product Innovation Management. 21(6). pp 401-415.

- Freeman, C and Soete, LLG. (1997). *The Economics of Industrial Innovation.* Printer: London.

- Furman, J, Porter, M and Stern S. (2002). *The Determinants of National Innovative Capacity.* Research Policy 31, 899–933

- Hargadon, A., and Sutton, R. I. (2000). *Building an Innovation Factory*. Harvard Business Review, 78(3), 157-166

- Hult, T.M. and Hurley R.F., (2004). *Innovativeness: Its Antecedents and Impact on Business Performance.* Industrial Marketing Management. 33 (5). 429-438

- Kaplan, J. (1996). *Startup: A Silicon Valley Adventure.* Paperback edn. New York. Penguin.

- Langlois, R. N. and Robertson, P. L. (1995). *Firms, Markets and Economic Change: A Dynamic Theory of Business Institutions*. London. Routledge.

- Laursen, K. and Salter, A. (2006). *Open for Innovation: The Role of Openness in Explaining Innovation Performance among UK Manufacturing Firms.* Strategic Management Journal, 27 (2): 131-150.

- Leonard ,D and Rayport, J.F. (1997). *Spark Innovation through empathic design*. Harvard Business Review 75 (6): 102-113.

- Lilian, G.L., Morrison, P.D., Searls. K., Sonnack, M. and von Hippel, E (2002). *Performance Assessment of the Lead User Idea Generation Process.* Management Science, 48 (8), 1042-1059

- Linder, J.C., Järvenpää, S. and Davenport T.H. (2003). *Toward an Innovation Sourcing Stretegy.* MIT Sloan Management Review, 43-49.

- Pillar F.T. and Walcher, D. (2006). *Toolkits for idea competitions: A novel method to integrate users in new product development.* R&D Management. 36 (3). pp 307-316.

- Prugl, R. and Schreier, M. (2006). *Learning from leading-edge customers at the Sims: opening up the innovation process using toolkits*. R&D Management. 36 (3) pp. 237-249.

- Rogers E.M.. (1995). *Diffusion of Innovation*. 4th edition. New York: Free Press.

- Rosenberg, N. (1982). *Inside the Black Box: Technology and Economics*. Cambridge University Press. Cambridge, UK

- Rosenthal, S.R., (1992). *Effective Product Design and Development*. Irwin, Homewood, IL.

- Schreier, M (2006). *The value increment of mass customized products: an empirical assessment.* Journal of Consumer Behaviour, 5 (4): 1-11

- Schumpeter, J.A., (1934). *The Theory of Economic Development.* Harvard University Press, Cambridge, MA.

- Schumpeter, J.A., (1942). *Capitalism, Socialism and Democracy*. Harper, New York.

- Stock, G.N., Greis, N.P., Fischer, W.A., (2002). *Firm size and dynamic technological innovation.* Technovation 22: 537–549.

- Tidd, J, Bessant J, Pavitt KLR. (2000). *Managing Innovation: Integrating technological, Market and Organizational Change.* 2nd ed. Wiley: Chichester.

- von Hippel, E. (1988). *The Sources of Innovation*. Oxford University Press. New York.

- von Hippel, E. (1994). *"Sticky Information" and the locus of problem solving: implications for innovation.* Management Science, 40 (4): 429-439.

- von Hippel, E. (2001). *Perspective: User Toolkits for Innovation*. Journal of Product Innovation Management, 18 (1): 247-257.

- von Hippel, E. (2002). *Horizontal innovation networks – by and for users.* MIT Sloan School Management and Working Paper No 4366-02.

- von Hippel, E and Katz, R (2002). *Shifting Innovation to users via toolkits.* Management Science. 48 (7): 821-834

- von Hippel, E. (2005). *Democratizing Innovation*. Oxford. Oxford University Press.

- von Hippel, E. and von Krogh, G. (2006). *Free Revealing and the Private Collective Model for Innovation Incentives.* R&D Management, 36 (3): 295-306.

.

APPENDICES

Appendix 1 : Conducted Interviews

Name	Organization	Position
Seppo Salo	Unilever	Customer Marketing Director
Giovanni D'Amore	Agilent Technologies	Marketing Development Manager
Miguel Castro	Skoda	Area Manager
Matti Virkki	VisionLeaders	Senior Consultant
Pentti Jukola	ConPro Consulting	Senior Consultant
Lars Lodder	L&C	Strategic Director

Appendix 2: Interview Questions

Personal characteristics of the representative
What is your current occupation?
For how long have you been working at the organization?
Could you describe the ideal personal characteristics for your function?
How do you experience your job?

Defining Innovation within your organization
How do you describe and define the term innovation?
How would you describe the role of innovation within product development?
Do you use the term innovation within your company?
In what matter is innovation important in your personal work activities?
Could you explain the process idea generation, how/where do you arrive at an innovative idea?

Innovation Management
Can innovation be managed in your opinion? How/ Why/ Why not?
What would be the management procedures?

Market Dynamics and Customer Integration
Has innovation management undergone change throughout the past years?
How does your company seek to understand customer wants and needs?

The open model of innovation assumes that only having internal R&D efforts will not lead to long term success. Instead sources such as lead users and customers should be exploited for knowledge. What is your perspective on customer Integration in sparking innovation for new product development ideas?

Customers have knowledge and very specific information on product attributes and features they would find convenient. How does your company integrate customers within obtaining this valuable product information?

Case Examples
Can you think of recent case examples which encouraged innovation?
Can you think of recent case examples where customer integration was encouraged or undertaken?

Benefits and Risks
What do you see as the most beneficial factors with open innovation?
What do you see as the most inherent risks of the open innovation assumptions?
What would you recognize as the largest risks of integrating customers into the product development processes?

Appendix 3

Interview Summary

Name: Seppo Salo
Organization: **Unilever**
Job title: Customer Marketing Director
Interview location: Unilever Quarters in Finland, Helsinki

Date: 24.03.2010
Time: 18:00-19:45.

Could you describe your function?
I am the customer marketing Director for Unilever in Finland. Basically my job includes the execution of brand processes. Our aim is to search for the factors which customer want and seek for within our product portfolios.

Defining Innovation within your organization
How do you describe and define the term innovation?
If we are looking at it from a product perspective, innovation is new products that are completely new for the product portfolio. Yet brand extensions and changes in packaging are also new innovations and should be taken into consideration. At Unilever we basically categorize all new aspects to a product as innovations.

The role of innovation is to create growth, market share and profit. Innovation creates long-term success. Innovation includes so many functions therefore, it must be viewed that my experience and definition only provides one perspective of the circle of functions. Innovation drives all companies.

How would you describe the role of innovation within product development?
The role of innovation is to create growth, market share and profit. Innovation creates long-term success. Innovation includes so many functions therefore, it must be viewed that my experience and definition only provides one perspective of the circle of functions.

Innovation drives all companies. Customers' demands require us to innovate.
From all sales 50% of profit is gathered from new products that have been launched to the markets recently. This figure signifies how important it is to launch new innovative solutions for customers. This is an approximate example but a rough estimation how it always works.

Do you use the term innovation within your company?
Constantly.

Could you explain the process idea generation, how/where do you arrive at an innovative idea?

We invest much into internal R&D operations. We look into customer behavior and purchase researches where we gather data to great extent. We use panels and surveys to understand customer wants. Much of the data is provided through emails from customers,

either through complaints made or appraisals of products. Lead users often contact us and provide valuable information.

How do you know what customer want?

We draw organizational self evaluations where we evaluate our brand space and monitor the 6Ps. At the moment lifestyle is a large trend and we look a lot of other demographics and trends. We search to evaluate how we are able to compete in comparison to our competitors and seek for new market opportunities after screening.

Another one is that we observe and evaluate where we sell, how could our distribution channels be expanded? We also conduct 'brand health checks', where customers evaluate our brands compared to competitors brands. We search to recognize the values and preferences of our users. We conduct these checks twice a year. R&D and brand development role is what we highly emphasize our efforts upon.

The open model of innovation assumes that only having internal R&D efforts will not lead to long term success. Instead sources such as lead users and customers should be exploited for knowledge.

What is your perspective on customer Integration in sparking innovation for new product development ideas?

We gain customer feedback constantly through calls and emails, where we are able to gain information and feedback from customers. These provide us indications. Lead users share their information and provide us with great ideas. We combine the information gathered and then internally analyze them and possible opportunities or modifications which should be done.

As a global company the resources provided for each local office is limited whereas vast customer based researches or integration models would be difficult to implement.

How does Unilever integrate customers within obtaining this valuable product information?

We have interviews where we ask customers to tell their opinions about products. Within these studies we observe and ask how they would find a product more beneficial or for what aspects do they seek from it. Customers are observed using prototypes and then they evaluate them.

Within these studies a certain format exists, yet these methods provide valuable information regarding the concept modifications that can be produced.

Can you think of recent case examples where customer integration was encouraged or undertaken?

We were thinking about possibly about launching an old product back on the markets. We constructed three different studies to gain insight whether users would appreciate the product and would they use it. The results were very positive and gave us much direction thus we are launching the dish wash detergent Surf back on the Nordic markets.

Benefits and Risks

What do you see as the most beneficial factors with open innovation?

Information gained from the users themselves.

What do you see as the most inherent risks of the open innovation assumptions?

Often customers do not recognize their wants or needs from a product. Therefore, it is difficult to interpret their wants and product intentions from studies. You'll never know if you subject group was the right one and was the subject group sufficient.

The largest risk with customer integration is trust. Once creating new ideas that could be possibly implemented into development, confidentiality is a key within our industry. Can you trust a customer? You never know!

Also these processes require a great deal of time and resources. They are not a cost effective methodology to be implemented necessarily.

If we can create innovative ideas within the company we have a major competitive advantage. Therefore why would we ever open our processes to someone who could be a possible threat to our success??!!

What would you recognize as the largest risks of integrating customers into the product development processes?

Risks associated among integrating customers is that we might analyze their inputs wrong. Also investments into these models are large, and if the customers are not willing to use the created innovation we have lost a great deal or resources and time.

Time is a challenge within our industry. You must be first and you must differentiate yourself from rival offerings.

Although we don't open integrate customers in the same manner as the proposed models assume, we still try to convey an image to the customers that they would be highly involved within our processes. This is highly important when trying to gain channel partners and also new clients.

Appendix 4

Interview Summary

Name: Giovanni D'Amore
Organization: **Agilent Technologies**
Job title: Marketing Development Manager
Interview location: Online Internet Interview
Date: 20.04.2010
Time: 18:00-19:00.

Personal characteristics of the representative
What is your current occupation?
Marketing Development Manager for a company the produce Test equipment for electronic devices.

For how long have you been working at the organization?
11 Years in the company, 3 years in the current position

Could you describe the ideal personal characteristics for your function?

The market development manager takes care of developing the market for a specific set of products/application in a specific geographic Area (EMEA in my case). This includes responsibility among creating awareness of the product with marketing activities like seminars/advertising/trade show and press communication and also the need to visit customer and gather feedbacks on the current product to help build the future products.

How do you experience your job?
It is a job where you have the opportunity to improve different skills in the technical side and in the marketing one. Also you have a constant contact with customers/people of different culture and this is a very enriching experience

Defining Innovation within your organization
How do you describe and define the term innovation?

Innovation is the "salt" of our products. In a market like the electronic one, decreasing costs dramatically within production is highly important. Therefore, we need to cut costs constantly which will consequently have an effect on the consumer price. In order, to be able to sell products with value and in a profitable manner, you need to differentiate your products binging innovation to the market.

Do you use the term innovation within your company?
Yes we do, innovation is part of our way of developing new products. Innovation is multi faceted concept. Sometimes you think that something innovative is only something new, but in effect there are so many ways to innovate....innovation is more and more think different...

Could you explain the process idea generation, how/where do you arrive at an innovative idea?
In the company we have strategy product planners that are taking care of creating the framework of developing a new product... the need of a new product can come for a market need (i.e. new technology) or from a internal need (i.e. product to replace/update).This person (or team) works to define the specifications creating a wish list of the specification that we would like to have in the product. Feedback on this comes from the R&D team and from the customer that represent an important part on the development. So the team is often visiting customers to understand actual and future needs. Innovative idea can come from this visit of often come from individuals that think "outside the Box" bringing to the table ideas. It is the responsibility of the product planner, to comprehend the validity of the product as well as to understand the cost of the implementation.

Innovation Management
Can innovation be managed in your opinion? How/ Why/ Why not?
What would be the management procedures?

More than about managing innovation, we should concentrate to manage the process that makes the innovation something concrete. This is what differentiates a commercial company that use innovation in their products and a "pure" R&D company looking at innovation as itself. Often the innovation is too expensive to implement or the product planner do not see business of it...in other word the Return of investment is negative. Make the innovation manageable is a great challenge and, on my opinion, require a certain amount of risk...

Market Dynamics and Customer Integration
How has innovation management undergone change throughout the past years?
Sure...as said before the electronic market became more competitive forcing the development of new products bringing innovation to our market...this shortens the development time of new products and the need of differentiation push the most innovative feature on the top of the wish list.

The open model of innovation assumes that only having internal R&D efforts will not lead to long term success. Instead sources such as lead users and customers should be exploited for knowledge.

What is your perspective on customer Integration in sparking innovation for new product development ideas?

The open model of innovation is something in use in our company like I described before. We do regular visits to our customer to gather information about the actual products and their future need. We have active program with key universities all over the world that include professor exchange, Grant, PHD financing and donation. Our R&D people are very active in the most important technical committees sharing knowledge and experience with the technical community.

Case Examples
Can you think of recent case examples which encouraged innovation?
In the recent times we had couple of case where the synergy between two different parts of

the company brought innovative ideas that now are a final product representing a real breakthrough of the industry. This was possible because of specific internal innovation meeting where the employees were entitled to share their ideas

Can you think of recent case examples where customer integration was encouraged or undertaken?
Recently a customer propose a need for a very special measurement....our team looked at it and we found the way to change one of our instrument to solve the customer need...the customer work was executed very closely with us helping with developing the test setup. The result were so good that at the end we decided to commercialize the final application and found several customers with similar needs...

Benefits and Risks
What do you see as the most beneficial factors with open innovation?
the most beneficial factor is the openness, so the possibility to have access to a wealth of knowledge otherwise limited in a close environment

What do you see as the most inherent risks of the open innovation assumptions?

Manage the input and being able to prioritize it. At the end you need to make a working product that you will be able to sell in a reasonable volume.

What would you recognize as the largest risks of integrating customers into the product development processes?

Our history is full of examples where a customer proposes a need and we create a product that fit him. Sometimes this lead to a very successful product but, in other case, to a commercial flop due to the fact that the product was too focused on the specific customer need. This is the main risk on integrating customer into development process. The risk is to mix the need of one customer is for sure the need of all your customers.

Appendix 5

Interview Summary

Name: Miguel Castro
Organization: SIVA Portugal, **Skoda**
Job title: Area Manager
Interview location: Online Internet Interview

Date: 29.03.2010
Time: 18:00-19:20.

Personal characteristics of the representative
Right now I am an Area Manager at SIVA, which is the Portuguese importer of the brands Audi, Volkswagen, Volkswagen Commercial Vehicles, Skoda, Bentley and Lamborghini. I work in the Skoda brand and my job mainly consists in supporting the dealership network (almost all the dealerships are independent companies not affiliated with SIVA, which means that they are only attached by a contract to sell a specific brand. This contract can be terminated.) in sales and in implementing quality developments that customers can feel and therefore (hopefully) become loyal to the Skoda brand.

For how long have you been working at the organization?
I have been working at SIVA for more than 2 years, although I had 3 different functions there so far.

Could you describe the ideal personal characteristics for your function?
A person in my function should be young and have not huge commitments to family life because my job implies constant travelling around the country to visit every dealership and check if they meet the required standards. Also you should be a motivated person and accept that you don't really have standard working hours. Sometimes everything is done at 5pm, other times you have to leave the company at 9pm. Obviously you also need a solid background that you get mainly from experience because you have to know what can you do and what you cannot do and in my job that is something you get mainly from personal sensibility. The dealerships are always asking "everything" and you can't always say yes.

Defining Innovation within your organization
How do you describe and define the term innovation?
Innovation is in my opinion the capacity of a company to create new "things" (processes, products, marketing communication techniques, etc.) that will give it a competitive advantage toward other competitors.

How would you describe the role of innovation within product development?
Innovation is most important part while developing a product. If you don't apply any kind of innovation in your product you are set for failure because your competitors will and you will be in disadvantage towards them.

Do you use the term innovation within your company?

We are always trying to innovate in my company mainly in processes in order to cut costs and provide a better service to our Clients. Speaking globally, of course the Skoda cars apply a lot of innovation in order to continue on the market and gain market share every year. The terms "innovation" and "improvement" are always present within my company.

Could you explain the process idea generation, how/where do you arrive at an innovative idea?
Mainly I arrive at innovative ideas while working "on the field" (in the dealerships). A vision from the outside is sometimes important and I can say things like "you should not do this, do this way because it's cheaper and better" for example and that's the kind of small innovative ideas that I'm always looking for.

Can innovation be managed in your opinion? How/ Why/ Why not?
In my opinion "managed" is not the right word but I think innovation can be encouraged and when this happens the probability of the company to come up with innovative ideas is a lot higher. Many companies (like my own) have innovation departments in which their work is to think about all the processes and products that are introduced now and ways to make them better and cheaper.

What would be the management procedures?
I think regarding innovation the most important procedure can be summed up in one word: "talk". I think brainstormings, constant exchange of ideas and constant attention to what the market is "saying" are the most important things to come up with innovative ideas.

Market Dynamics and Customer Integration
Has innovation management undergone change throughout the past years?
As with almost anything, the evolution and general improvement has made the innovation management change in the past years. Right now is easier to innovate than a hundred years ago because you have access to a lot of tools now that you didn't have a hundred years ago.

How does your company seek to understand customer wants and needs?
We study our customers to try and understand what they want and how can we reach them. Every time we sell a car we do this questionnaire by telephone to try and figure out some data (age, family, job, etc) and also (and most important) if they are happy with all the process that led them to buy a car. Afterwards we work on that data so that we can see who our main target in terms of customer is and how can we reach them and make them happy.

The open model of innovation assumes that only having internal R&D efforts will not lead to long term success. Instead sources such as lead users and customers should be exploited for knowledge. What is your perspective on customer Integration in sparking innovation for new product development ideas?
I couldn't agree more. As I said before the exchange of ideas even outside of the organization is the most important things. If you don't listen to your customers you will never reach them and you never do a productive innovation.

Customers have knowledge and very specific information on product attributes and features they would find convenient. How does your company integrate customers

within obtaining this valuable product information?
As I mentioned before we try to integrate customers mostly with their knowledge (the questionnaire I told you for example) but also in a way that they have no idea. For example we can see what searches were made in Google before someone clicked on the Skoda webpage. If we came up with a figure like (and I'm just making this up) 65% searched for "cheap cars" then we know what our prospective Clients expect from us and most important, what is the image that we are projecting... And work on that to innovate and reach new Clients without losing the ones we already have.

Can you think of recent case examples which encouraged innovation?

In my company, a project was created called TDI (it is a pun word, it means Turbo Direct Injection on the diesel engines of the VW cars and it's also the initials for "Todos Dão Ideias" which can be translated in english to "Everybody Gives Ideas") and it consisted in leaflets that were everywhere in the company and people could go in there, pick one up and write an idea that they had and felt it could improve the productivity or decrease the costs of an activity here. Afterwards we had a department that would study that idea and, if they thought it was worthwhile, implement it on the company. A lot of money was saved because of that.

What do you see as the most beneficial factors with open innovation?
I don't regard innovation as any other thing besides opened. It is essential that it exists discussion and exchange of ideas between all the people in a Company if you want to innovate properly and create added value that Clients will perceive. Put "all the Company" working together will be good for innovative ideas to come out and also for the motivation of the employees (they feel they are "listened").

What do you see as the most inherent risks of the open innovation assumptions?
The only risk I see can be the fact that people involved can leave the Company at any time and go work on a competitor, therefore bring there the innovation that was being developed originally. In my opinion it is a small price to pay compared to the numerous benefits of involving the most amount of people possible (relevant people of course) in the innovation process.

What would you recognize as the largest risks of integrating customers into the product development processes?

Every Client is a different person. Therefore a risk you have while integrating customers into the product development process is the chance of not defining very well your sample or understand wrongly what the Clients are saying and end up doing something that your "core customers" don't approve. However with market studies, etc, that risk is relatively low and it is essential to "listen" to Clients and their needs in order to meet them and always improve your products.

Appendix 6

Interview Summary

Name: Matti Virkki
Organization: **Vision Leaders Consulting Group**
Job title: Senior Consultant,
Researcher at Helsinki School of Economics
Interview location: Vision Leaders, Helsinki Finland
Date: 24.03.2010
Time: 16:00-17.30

Defining Innovation within your organization:
How do you describe and define the term innovation?
I personally do not use the word innovation as I find it abstract and too broad. From a research perspective, the term is not used and instead I use creativity, as from my perspective innovation originates from the creativity of human beings. Innovation is difficult to grasp therefore mechanisms driving it should be more under speculation.

We can only assume that innovation generates when the environment is open for information exchange, when information may freely flow in and out. The open innovation model is based upon these assumptions and thus we can consider the term innovation within that environment. Innovation according to my perspective means synchronizing new ways of thinking and operational models. Within an organization that is based upon a functional base, and operational procedures are closed internally, information does not flow freely and thus we cannot assume it to be innovative.

Innovation concept should be only used within an environment where information may be expressed freely. Therefore, the word should be used nowadays with more consideration.

Can innovation be managed in your opinion? How/ Why/ Why not?
Innovation can and should be managed.
Innovation management is knowledge management. Knowledge management however includes the interactions of tacit and explicit knowledge.
Innovation management should recognize and integrate the following three categories:

1. Functions –ways of finding new ways of doing

2. Mechanisms – operations and operators producing models

3. Development Processes – created models to enhance development

These three should be synchronized together with their operations in order to produce a context where information and thus innovation may spark. These three levels create forums in which teams integrate and operate together and are able to generate creative innovative ideas. Synchronizing these terms will create dynamic ability from which innovation may arise from.

In order to enhance processes of innovation there must be integrated changes within the organization's operational environment. Stages that occur in order to create the process include: alarm, modelling, start-up and extension. (Diagram provided)

Case Examples: Can you think of recent case examples where customer integration was encouraged or undertaken?

I was part of an integration project during the years 1996-2001. Our aim was to integrate farmers with producers and channel partners. We started creating platforms where people within the industry could communicate and exchange information. Many volunteer farmers were incorporated within these procedures and valuable information was gained from them. The idea was that GPS systems would be installed within farming equipment, which would indicate the requirements of nutrition etc for the soil at that specific location. This project included many people from the farming industry and various other team members from top engineers to consultants.

As the information of what farmers needed, when and where were integrated into a data base system, logistics management and channel management were highly optimized. This later established company became known as GrowHow. The outcome of the process of integrating different participants and their knowledge together provided a new innovative mechanism for agricultural functions. Today GrowHow has 70 000 end-users which is 80% of the entire market. This integration model became a dominant model which is widely in use.

Benefits and Risks

What do you see as the most beneficial factors with open innovation?

Integrating customers within product development is a long process. However, due to its long procedures it promotes commitment and thus risk decreases. People seek for individualistic products, ways of creating innovative ideas to provide these. Therefore, once an individualistic process is created, value for the end-user is created whereas also the price can be highly influenced. When the customer themselves are the ones incorporated within the centre of the idea generation and search of new methodologies, their motivation towards the processes are increased. These activities also lead to increasing customer relationship management.

What do you see as the most inherent risks of the open innovation assumptions?

When many people are integrated within the processes and idea generations, the question of who is in control may become a problem. Yet these processes last for years and years however they have very significant and powerful outcomes.

What would you recognize as the largest risks of integrating customers into the product development processes?

The models how to integrate customer into product development that have been put forth are interesting, yet we must remember that they are only theories. These theories do not have specifically empirical evidence. Instead they represent heuristic processes, where optimal solutions are searched for. Models of customer integration open valuable ideas, yet they cannot be strictly interpreted into practise.

Appendix 7

Interview Summary

Name: Pentti Jukola
Organization: **ConPro Consulting**
Job title: Senior consultant
Interview location: ConPro Office, Helsinki, Finland.

Date: 25.03.2010
Time: 11:00-13:00.

Personal characteristics of the representative
What is your current occupation?
I am a senior consultant at ConPro Consulting. As a consultant I have operated for the past years and acquired an extensive 25 year experience working in different executive roles within manufacturing firms.

Defining Innovation within your organization
Innovation is necessary to enhance productivity and thus market share. If desired market objectives are not reached, radical changes need to be implemented to encourage innovation. Innovation is the development and changes that takes part within organizations. Promoting team learning environments and constant improvement will lead to the fact that the need for change is noticed and executed.

Can innovation be managed in your opinion? How/ Why/ Why not?
What would be the management procedures?
There are two innovation processes.
Firstly, the innovation creation of new product is something, where you try to discover new radical solutions by obtaining a transformational model. Product development is a highly time consuming and long term procedure, these models take long to create and arrive at.

Secondly management style has to be taken into consideration. The management had to embrace change and implement change. Often it is consultancy that is required to implement and recognize the needs for change. Within innovation management it is the middle management and their dynamics which has to be integrated in order to create new models.

From a consulting perspective, innovation requires network creations in which different perspectives are integrated and intertwined. Different models such as the evolutionary and transformational models may then be employed.

Innovation has four phases as the following: alarm, evaluation, implementation, and enlargement. These four include the phases from vision creation until actual application of models. In order to arrive at innovative ideas and to promote the way of thought within organizations the management has to be committed to these practices. An actual management process thus has to be created.

Market Dynamics and Customer Integration
Has innovation management undergone change throughout the past years?
Yes, to great extent in the manner that information, communication and the costs of these

transactions have gone dramatic change as technology has developed. Technological advances, fast information in- and outflows enhance innovation and utilizing them more can be developed.

The open model of innovation assumes that only having internal R&D efforts will not lead to long term success. Instead sources such as lead users and customers should be exploited for knowledge. What is your perspective on customer Integration in sparking innovation for new product development ideas?

In my opinion customer integration methods provides valuable information for organizations. Once such methods are applied the user/ customer benefits, as often the solution searched for are related to their activities of interest or practice. At the same time the organization is able to obtain valuable information and utilize it in the creation of specific product or service processes.

A specific commitment should be created from all sides of different parties. In order for information to be exchanged freely and openly, forums and platforms for these should be created.

Case Examples

In manufacturing companies that I have been working at we have tried many research techniques to understand the customers and to integrate their needs in the centre of our attention. Mostly research techniques include surveys, and customer research data base analysis, which following many aspects of target users.

We have constructed searches in which we ask what customers buy, and then in actual post data procedures view what they bought; by analyzing this data you arrive at specific choices made in the store and during purchase situations. We also have activated users to provide feedback and criticism via the Internet, and integrate them through online competitions.

New innovative product developments, new trends are often viewed at for example at large international fairs where international companies demonstrate their newest innovations. A key element is always to compare your product portfolios in comparison to your competitors.

We have also constructed customer integration methods, where we have place cameras all around users homes and viewed them to understand how they use the product and analyze product use situations. These are also beneficial towards product development innovations.

Benefits and Risks

What do you see as the most beneficial factors with open innovation?

All elements of innovation processes have to be incorporated. Managing this sometimes may be difficult, also who is the one who manages and guides these processes.

Appendix 8

Interview Summary

Name: Lars Lodder
Organization: **L&C**
Job title: Strategic Director
Interview location: L&C quarters, Haarlem, Netherlands
Date: 30.03.2010
Time: 15:00-15:45.

How do you describe and define the term innovation?
Innovation has a multi-interpretable character which makes it very difficult to define. Very simply put you could say that it is the creative use of a good, service, or idea that is already available. In my daily business activities it means searching for new ways of creating successful advertising campaigns. We do that by forecasting market demands, monitoring consumer demands and analyzing/optimizing past/recent successful campaigns. It is a learning process with a continuous nature; always think the opposite and play the lawyer of the devil in order to stay sharp. My interpretation from this is that question everything which is taken for granted and only believe when you have proof for eventual success.

Could you explain the process of idea generation?
Idea generation is a rather broad subject so in order to make it tangible I would like to zoom in on two issues concerning this subject. First I will highlight the structural perspective in order to understand the process of idea generation itself. Secondly I will shortly indicate what strategic meaning idea generation can add to for instance creativity and innovation.

Idea generation can be positively influenced by understanding its structure, how does it evolve and what management techniques can make it blossom. First thing which comes up in my mind is the brainstorming sessions we use to realize the generation of new ideas. From a business perspective the most effective way to structure and trigger new ideas. Together with that monitoring the business environment for trends and new technologies is part of our daily advertising activities. So brainstorming, monitoring your environment and thinking out of the box would be elements to structure and facilitate the process of idea generation.

The process itself is dynamic, continuous and always magical. Often the best ideas arise while not trying to push them out of your brain but in an unstructured, impulsive manner. For this often an external stimulus creates an interesting trigger. The ideas are floating in the air, it is up to us to catch them!

Can innovation be managed in your opinion?
From my personal experiences I can indicate that managing innovation could not be done if you would regard it to be controlling and completely structuring innovation. In my opinion the optimal standards/circumstances and conditions for innovation can be set though. So that part can be managed, but it needs also a certain hands-of approach in which

the innovation can blossom and the people involved with it can think out of the box. So from a management perspective I would say yes with a balanced combination of hands-off and hands-on management approach.

What would be the management procedures?
- Organizing Brainstorming sessions
- Developing learning programs with an innovation nature
- Changing ways of traditional thinking via recent successful business cases

What is your perspective on customer integration in sparking innovation for new product development ideas?
I think it is definitely favorable to integrate customers in order to spark innovation. Look at for instance at the success of Amazon.com, here customers influence each other and Amazon in purchasing/offering decisions and give their buying reviews about shipping and website usability daily. It depends of course on the product or service and in the way how far you let the customer approach your company. If customers actually would influence the decision making in the boardrooms; decisions on strategy could become very short-term oriented. The most ideal situation is in my opinion when customers and companies nurture each other from an innovation perspective. Pro-active innovation product-offerings and actual customer demand innovation product-offerings will result in a long-term successful strategy.

What do you see as the most inherent risks of the open innovation assumptions?
- Sometimes the deals made are not structured in a way that captures the financial value of your innovation.

- How far are you willing to let innovation go? Exporting it clarifies your core business and signals the true worth of an innovation but how does it influence your traditional values, ethics, ways of doing business and business ideas?

Appendix 9 - *IRP - Research Proposal*

Title **-** Optimizing Innovation Management: A Customer Integration Perspective.
How should Lead Customers be integrated in Product Development to Optimize Innovation Management?

Background **-** The open innovation paradigm (Chesbrough, 2003) proposes that the advantages companies' today gain from internal research and development expenditure and efforts are declining. Accordingly, the most fundamental parts of innovation processes involve the search of new ideas. Therefore, once searching for new ideas, companies should also seek for users originating with potential ideas for product development. Thus, the open innovation model assumes that innovation processes and their successes are highly dependent also on the search and collection strategies for external knowledge.

Problem statement – In my vision users are not exploited in their full potential within new product development. Models of open innovation, such as empathic design, toolkit and virtual customer, should be more utilized in order to guide innovation management processes.

Research objectives – Study's aim is to first provide a theoretical framework of the subject, open innovation. From the analysis of the theory and models proposed, an organizational perspective will be gathered from interviews. Within the study, the intention is to enhance the understanding of how companies arrive at innovations and more thoroughly, how they spark innovations for product development. The objective is to view to what extent the interviewed companies are open within their innovation procedures and methodologies they use.

Method – The nature of this research will be a qualitative research to gain an understanding of the participative efforts of innovation processes. Interviews will be used as primary qualitative outputs and will be the centre of analysis.

Timescale

Task	February	March	April	May
Analysis of data				
Draft 1				
Draft 2				
Final Draft				

Resources – My intention is to use academic articles and books as sources of data. These can be obtained from libraries and online. Skype will be used for some of the interview sessions. I do not require other resources.

References –

- Chesbrough, H. (2003). *Open Innovation: The New Imperative for Creating and Profiting from Technology*. Harvard University Press: Cambridge, MA.
- Chesbrough, H. Vanhaverbeke, W. and West, J. (2006). *Open Innovation: Researching a New Paradigm.* Oxford University Press: New York.

Appendix 10

Literature Review

Outsourcing Innovation: A User Centred Approach

"To be successful in todays environment of rapidly changing customer values, corporations must incorporate the customers' views into every business management system"
Harvey Thompson

"Manufacturers should redesign their innovation processes and systematically seek out innovations developed by users."
Eric Von Hippel

"Innovation policy and management have to be much more the R&D policy and R&D management"
Ian Miles

Fanni Jukola
November 2009, Metropolia

We are constantly surrounded by the notions of innovation. Innovation is what drives all companies nowadays in its purpose is to differentiate and to create cost reductions. Various authors speculate the futures of innovation in company procedures. There are basically three innovation fields that could be examined under this topic: User Driven Innovation, Service Innovation, and Organizational Innovation.
I have chosen to look more into the user driven innovation as its conventions appeal to me (as I am a consumer as well), however user driven innovation includes manufactured products yet also services reflected upon clients.

Manufacturers face problems in understanding the wants and requirements of consumers today as users wants change rapidly, and as firms seek increasingly to serve markets of "one"(von Hippel, 2005). New innovations in Technology and communication enhance the adoption of new innovations, however according to researchers there is plenty of room for new enhancements within innovation of manufactured goods and services.

Ian Miles argues that that, "only a small segment of innovation conforms to the typical manufacturing based model, in which innovation is largely organized and led by formal R&D. Innovation policy and management have to be much more than R&D policy and R&D management, this is recognized by some… but full implication of a service-dominant logic are still rarely found."

Ian Miles (2008 pp. 117-128)

Harvey Thompson agrees with this perspective and places high emphasis on costumer value management, "To be successful in todays environment of rapidly changing customer values, corporations must incorporate the customers' views into every business management system." In his book he brings forward that to attract market share and increase customer loyalty customers have to be made an integral part of the business design. He provides various studies conducted within companies, offering views in ways which customers can get more involved.

Harvey Thompson (2000)

Miles and Thompson agree on essential constructions of innovation processes within infrastructures of companies however, do not seem to suggest very deep inscriptions on how to take innovations further in future.

Eric Von Hippel, Professor and Head of the Innovation and Entrepreneurship Group at the MIT Sloan School of Management, argues that manufacturers should redesign their innovation processes and that they should systematically seek out innovations developed by users. He looks closely at this emerging system of user-centered innovation. He explains why and when users find it profitable to develop new products and services for themselves, and why it often pays users to reveal their innovations freely for the use of all. In his perspective, innovation is rapidly becoming democratized. Users, aided by improvements in computer and communications technology, increasingly can develop their own new products and services. These innovating users—both individuals and firms—often freely share their innovations with others, creating user-innovation communities and a rich intellectual commons. Eric von Hippel (2005)

As a future innovation for user-centred innovation Hippel, Thomke, Katz and others propose User Toolkits. These user toolkits would be specific to given product or service and to a specified production system. Within those general constraints, they give users real freedom to innovate.

"New products need to be responsive to users needs if they are to succeed. Fortunately … manufacturers actually abandon their increasingly frustrating efforts to understand users' needs accurately and in detail. Instead they learn to outsource key need related innovation tasks to the users, after equipping them with appropriate "user toolkits for innovation".

Eric von Hippel (2001, p. 247)

By shifting want related development tasks to users, according to the perspective above, is profitable by the means of sticky information, eliminated problem solving going back and forth (between manufacturer and consumers), and one time cost for manufacturer, which could lead into mass customization.

Eric von Hippel (2001)

Lars Bo Jeppesen in his article User Toolkits for Innovations: Consumers support each other, examines a contrary view on cost reduction the actual impact of user toolkits. He looks at the implications of different levels of opportunities for consumer involvement (OCI) in product development to learn what happens when firms pass their design tasks on to consumers. With reference to studies he provides accounts for the fact that as companies seek cost savings with information acquisition by letting consumers "do it themselves" may eventually re-emerge as costs in consumer support. Basically, he argues that an increase in consumer involvement seems to increase the need for supporting consumers. However, he does point out that this interactive problem could be solved by supporting the interaction amongst consumers themselves. On the basis of his research he provides interesting points for the arguments of toolkit use and outlines that consumers sharing the toolkit related knowledge could enhance the outcomes produced by the toolkit approach.

Lars Bo Jeppesen (2005, pp. 248-359.)

As manufacturing designs and services are constantly being outsourced questions remain how consumers will accept and adopt these techniques. Nowadays when you go on a vacation everything is booked by yourself (in most cases, as it is cheaper than using a travel agency). Also once using banking services, everything happens electronically and no actually face-to-face service is provided. However, how will this affect the consumers in the future if everything will be socially outsourced? What are the implications of these actions?

A research article written by Erik de Vries, elaborates on the reasoning about recent innovation trends. He refers to Galljou and Weintein (1997) vector model of services and products as a system of characteristics and competencies. Basically he highlights the importance of clients' access and competencies for the tools of the innovation to adopt the

innovation. De Vries draws many questions on the appropriability of innovations, when client is interacted within the co-production. He states that there are various problems that arise for example how can innovation be then protected and how can the ownership of the innovation be determined.

Erik de Vries (2006)

I would also like to bring out a contrary perspective supporting outsourcing, as the idea seems very appealing during the recession. An article published in the Business Week highlighted that "outsourcing innovations… it's a strategy that clients could use to provide fresh perspectives – and save themselves hours of time and effort."

Reena Jana and Vanessa Wong (July 22, 2009)

With the subject of outsourcing innovation and elaborating it to user centred innovation, there are many perspectives one could choose to go with and find support for. I would like to provide accounts from perspectives between the organizational and client one.

The literature I have read consists from various sources of articles and a few books. Until now my aim has been to study and examine the topic quite vastly, in order to find my topic of interest and to construct my focus for my thesis. As you may notice form the material covered, my interest has highly been in reading the new customer centred- innovations. I have focused great interest in the futures of outsourcing innovation.

My focus at the moment is to study factors such as, How far will outsourcing innovation and cost reduction lead. As well as the consequences of outsourced innovation reflected upon the costumers. As discussed in class after my presentation, I will shift my focus from the business point of view, which has been offered from the literature, into a perspective closer to the consumers'. I also want to bring out a critical view to this perspective, as in my opinion outsourcing innovation, services etc do not necessarily lead to consumer loyalty or satisfaction.

The literature covered to this point of time provides support for my research however, there is a variety of information that needs to be gathered and researched. I have provided some views within my report coming from articles and books, however still read various other materials providing support for the basis structure of my report.
Below are briefly listed the sources I have acquired and have been reading.

References:

Alter S. (2008). *Service System Fundamentals: work system, value chain, and life cycle.* IBM Systems Journal. Vol 47. No 1.

Bo Jeppsen, Lars. (2005). *User Toolkits for innovation: consumers support each other.* Product Innovation Mangement. Vol. 22.

De Vries Erik J. (2006). *Innovation in services in networks of organizations and in the distribution services.* Research Policy. Vol. 26.

Fichman, Robert. G, Kemerer, Chris F. (1999). *The Illusory Diffusion of Innovation: An Examination of Assimilation Gaps.* Information Systems Research Vol.10 No. 3.

Jana, Reena and Wong, Vanessa. (2009). *Why Outsourcing Innovation Makes Sense.* Business Week online. 22 July 2009.

Miles, Ian. (2008). *Patterns of Innovation in Service Industries.* Systems Journal. Vol 47. No.1

Thompson, Harvey. (2000). The Customer Centered Enterprise. McGraw-Hill. New York.

Von Hippel, Eric. (2001). *Perspective: User Toolkits for Innovation*. Journal of Product Innovation Management. Vol 18. Iss.1.

Zammuto, Raymond F., Terri L. Griffith, Ann Majchrzak. (2007). *Information Technology and the Changing Fabric of Organizations.* Organization Science. Vol. 18 No.5.

Von Hippel, Eric. (2005). *Democratizing Innovation*. Oxford. Oxford University Press.